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To EDWIN A. START

Secretary American Forestry Association
1410 H Street N. W., Washington, D. C.

Dear Sir: I hereby signify my desire to become a member of the American Forestry Association. One dollar ($1.00) for annual dues is enclosed herewith.

Very truly yours,

Name_____

P. O. Address_____

Virgin Forest on St. Bernard Mining Company's Land, Kentucky

American Forestry

Vol. XVI AUGUST, 1910 No. 8

PLANTING FORESTS IN KENTUCKY

By J. B. ATKINSON

OF ALL the great questions to be solved in this country of ours, that of forestry is preeminent. It is the one closest to every citizen. It is related to agriculture, to the navigation of our rivers, to the rainfall as regards great floods or great droughts, to the mining industry of coal, iron, gold, silver, in fact, of all metals dug from the earth. Timber is as necessary to all mining operations as is labor.

Twenty years ago, the St. Bernard Mining Company of Earlington began to plant trees on lands that had largely been turned out as no longer valuable for the growth of tobacco and corn. My experience as a mining man indicated to me that the time would come when timber would be far more valuable and difficult to secure for mining operations.

At that time I had given little thought as to the time it takes our forest trees to mature, and had little knowledge of tree growth. Much timber of the many varieties growing in our Kentucky forests had been cut, and the study of tree growth began by counting the annular rings of the stumps, and much time was spent, then and since, in determining how long it took the destroyed tree to grow. I was surprised and interested. The following table shows the number of years it took various trees to reach the diameter given:

Variety	Age, years	Diameter, inches
Hackberry	115	25
White elm	120	27
Black oak	148	28
Black willow	50	18
Sassafras	112	19
Sugar maple	155	38
Swamp maple	134	28
Blue ash	273	36
Yellow chestnut	...	..
Oak	186	21
Post oak	150	20
White oak	261	48
Scrub oak	150	15
Red oak	147	27
Sycamore	260	57
Tulip tree	225	57
Black locust	45	13
Beech	165	36
Hop hornbeam	55	13
Sweet gum	184	34
Sour gum	141	25
Black walnut	189	29
Wild cherry	46	16
Shell-bark hickory	120	12
King nut hickory	163	19
Pig nut hickory	163	13
Kentucky coffee	25	5
Spanish oak	220	38
Texas red oak	215	43
White oak	173	33
White oak	312	36
White oak	290	35
White oak	275	35
White oak	297	31
White oak	310	36
White oak	325	41

This list includes thirty varieties of our most prominent forest trees. During these twenty years, especial attention has been given to finding the growth

GROWING TULIP TREES

View of forest eleven years old from seed. St. Bernard Mining Company, Earlington, Ky.

GROWING WALNUT, BLUE GRASS AND JERSEY CATTLE

Walnut grove twenty years old from seed. St. Bernard Mining Company, Earlington, Ky.

CATALPA SPECIOSA

Plantation three years old from seed. St. Bernard Mining Company, Earlington, Ky.

of the white oak. Forty-five white oaks of Hopkins county, grown on hills, in the valleys, and on the slopes between, were examined as to the ages when the trees reached twelve inches diameter. The average age was found to be 101 years. The average age when cut was 231 years, with average diameter of thirty-one inches. The oldest tree when cut was 325 years old, with a diameter of forty-one inches, and was ninety-five years growing to a diameter of twelve inches. The youngest was 142 years old when cut, with a diameter of twenty-seven inches, and was seventy-five years growing to twelve inches.

Thirty-five of these trees were over 200 years old. Four of them were over 300 years old. From the facts collected during these twenty years, I have made a table of the time it takes certain trees, in Kentucky, to grow to a diameter at the stump of twelve inches. This is not an infallible table, but it is based on actual tree growth as observed in the forest; and has no reference to isolated growth, or to unusual conditions. The pin oak will grow to twelve inches diameter in forty years; black locust in forty-five years; tulip in fifty years; black walnut in fifty-six years; Texas red oak in fifty-eight years; sweet gum in sixty-two years; ash in seventy-two years; hickories in ninety years; white oak in 100 years.

The first tree planting was with the black walnut, the nut of which was planted in the autumn with the hull on, when the nuts became mature. The ground was prepared as for corn, and the nuts planted four feet apart each way, or 2,770 to the acre, being covered with soil from one-half to one inch in depth. The land was cultivated for three or four years the same as for corn, and then blue grass sown, the idea being that in ten or twelve years the trees would be large enough to permit pasturage.

On the poorer of the thrown out farm lands we plant black locust. This tree, belonging to the pulse family (the family of the clover and the peas), draws its nitrogen from the air and enriches the soils. We plant these trees seven or eight feet apart each way, and cultivate as we do the walnuts.

We also plant the catalpa speciosa, a rapid growing tree from the Wabash Valley. I have found this tree, growing from twenty-one inches to twenty-four inches in diameter at the stump in thirty-eight years. This catalpa, according to authorities, makes the most enduring fence posts, telegraph poles, and railroad ties. It is planted spaced seven or eight feet, and cultivated like the walnuts for three or four years.

The tulip tree, commonly called the yellow poplar, is a most durable tree, and should be planted on good land, the trees ten feet apart each way, or 435 to the acre.

Up to the present time, the above-mentioned four varieties are the only ones planted by us for the growing of new forests. From the autumn of 1888 to the spring of 1909, inclusive, my company has planted 430,000 black walnuts on 162 acres; 160,000 catalpa speciosa on 230 acres; 200,000 black locust on 280 acres; 10,000 tulip on twenty acres; and 850,000 black walnuts in vacant places in the forest, largely in bottom lands, a total planting of 1,650,000 trees.

As one of the most accomplished of foresters, Dr. C. A. Schenck, of Biltmore, N. C., writes me: "If forestry is a desirable industry, it is entitled to the fostering care of the public. As an industry, it stands unique, by the long time required for the production of its raw material, which exceeds the length of production entailed in any other kind of industry. This makes forestry impossible unless the people offer to the corporation or private individual practicing forestry special aid and special inducement and special privileges, similar to those which the people have given for public purposes, as railroad and telegraph companies, and other corporations acting for and in the people's common interest."

In Europe, planted forests are estimated to mature as follows: Spruce, ninety years; pine, 100 years; fir, 120 years; beech, 120 years; and oak, 160 years.

BLACK LOCUST

Forest three years old from seed. St. Bernard Mining Company, Earlington, Ky.

In Kentucky, the tulip would compare with the spruce or pine, with a diameter at the stump of twenty-four inches in the 100 years. The black walnut at 120 years should be twenty-five inches in diameter, and compare with the European or American beech. Our white oak would be eighteen inches to twenty inches in diameter in the 160 years, considered as mature as in Europe. All trees thrive as the soil is good or indifferent, and maturity depends much on the same condition.

The forest planting of walnuts twenty years ago has been thinned out until the stand is much less than 1,000 to the acre. Twenty-nine trees twenty-five to thirty-five feet high, occupying 1,100 square feet, have now an average circumference of seventeen and one-half inches, or five and one-half inches diameter. The largest tree is nine and three-tenths inches in diameter, the smallest three and four-tenths inches. A young tulip forest, eleven years old from the seed, has produced trees six inches in diameter.

One of the inducements in planting walnut forests and adding blue grass and making a pasture, was that there would be no danger of fire. The leaves and stems of the walnut trees quickly assimilate with the soil.

When a natural forest is grazed, the cattle destroy much of the young growth, and my company is fencing our woodlands as rapidly as possible. The preserving of seed trees, together with fencing, will let nature do much to increase growth of present forests. Then reduce the cutting of timber to something below the annual growth, and a good beginning will have been made to restore Kentucky forests to their original glory. Besides this, there are tens of thousands of acres of cleared land in Kentucky that should be returned to the forest. Let the farmer select ten to twenty acres of medium good land and plant it in walnuts and blue grass. A better or more profitable combination could not exist. On poor land, plant the black locust, and presently be possessed of a perpetual woodlot. On meadow lands plant catalpa speciosa, and again have a perpetual and quick growing forest.

Kentucky has too much land in so-called cultivation. Half the acres, well cultivated, would bring larger and better crops than are now secured. Hence the planted woodlots could be spared.

In 1907 there was cut from Kentucky forests 912,000,000 feet, board measure. If the annual growth of our forests is no greater than the average of the entire country, thirteen cubic feet to the acre, or 156,000,000 cubic feet for the 12,000,000 acres of forest land in the state, it would indicate that we cut over three times the annual growth. The cut of 1907 was an increase of thirty-eight per cent over that of 1906. During the past twenty-seven years Kentucky is credited with a cut of 14,531,000,000 feet, board measure, or an average of 538,000,000 per year.

To sum up the case: Forests are necessary to life and civilization. Kentucky has about half its area still covered with forests, and is in better condition to retain its present acreage and increase the annual growth than most of the states of our country. We are a patriotic people, but patriotism alone will not increase the production of our forests or add to its acreage. Legislation is required. If the commonwealth of Kentucky can protect its quail, it can protect its trees. We have not yet been awake long enough to the great problem before us that must be met in the near future, to know what is best. We do know that a tree planted is an added guarantee to continued civilization, but we have yet to study what inducements are needed to plant the tree and protect and increase the forests we already have.

Not only is Kentucky interested in solving the problem, which will tax the best minds in the commonwealth and the nation. Our mountain forests are the watersheds of great rivers, and aid

in regulating the flow of streams, and preventing the erosion of the soil. Every citizen of our country is interested.

Kentucky has about 12,000,000 acres in forest lands, which is about one-half the acreage of the state. It is not possible to get from the books the assessed value of forest land, but the value of all lands in Kentucky for 1907 was assessed at $12.60 per acre. On this valuation the forest land would show a value of $150,000,000. An assessment for state and county purposes of one per cent on this yields a revenue of $1,500,000, or a tax of $0.12½ per acre.

The cut of timber for 1907 was a little over 912,000,000 feet, board measure, valued at $10,000,000. If this value of the timber cut had been taxed eight per cent, it would about equal the revenue derived from the $0.12½ per acre.

I believe the theory of free forests and revenue from the product of the forest may aid in the solution of the tax question. Then the man who plants trees would have an inducement. He would not be taxed on his growing crop until he sold his trees. The owner of forest lands would not be apt to cut immature trees, but await mature growth. One thing the American people may well understand at once—there will never be cheap lumber again. A people that cuts three feet to one that grows, as at present, will require generations of skilled forest management to increase the annual growth of the forests to meet the wants of civilized life.

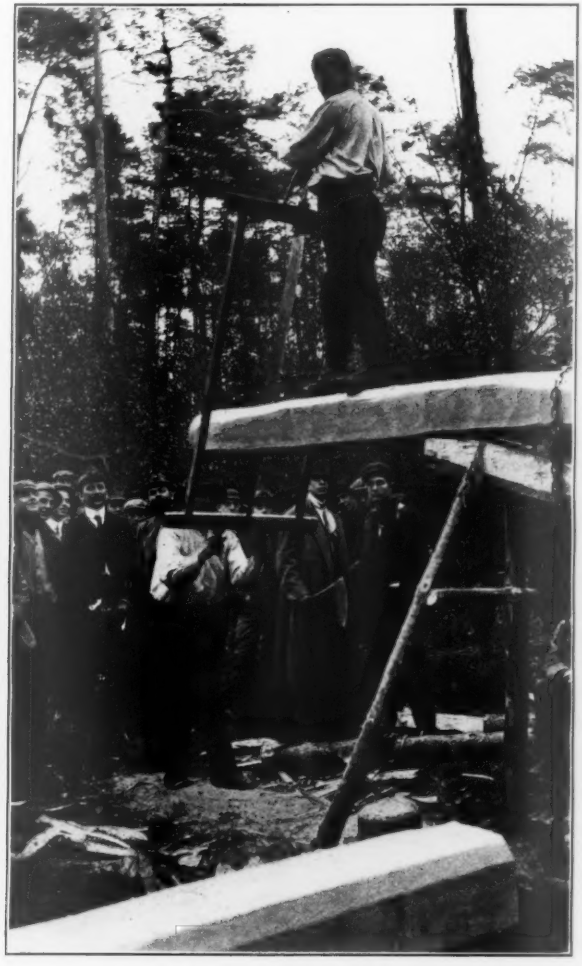
AMERICANS AND AMERICAN TREES IN GERMANY

Heavy snowbreak in Douglas fir near Hamburg

AMERICANS AND AMERICAN TREES IN GERMANY

A SERIES OF PICTURES

By HOWARD R. KRINBILL, Assistant, Biltmore Forest School,
Winter Quarters, 1909-10, Germany

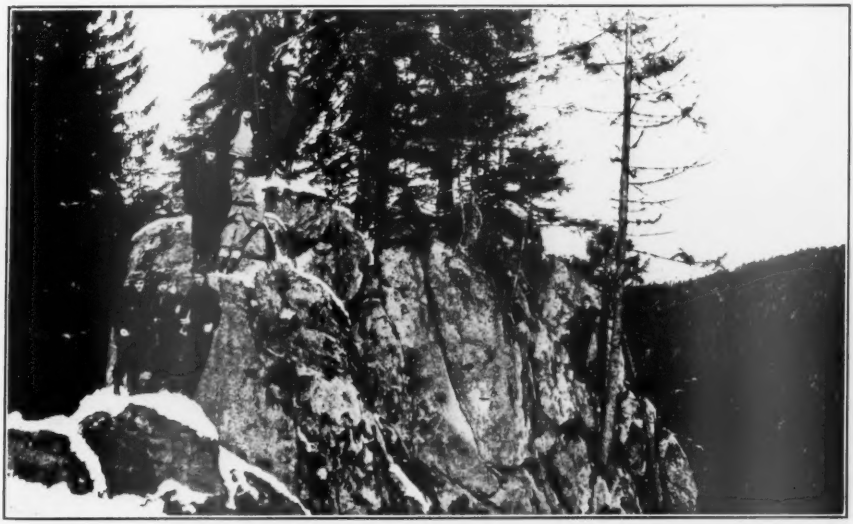


Sawing Scotch pine railroad ties in Mitteldick Forest. One man hews and saws ten ties daily at seventeen cents each. An American holds the hewing axe

SCOTCH PINE TIES, MITTELDICK FOREST

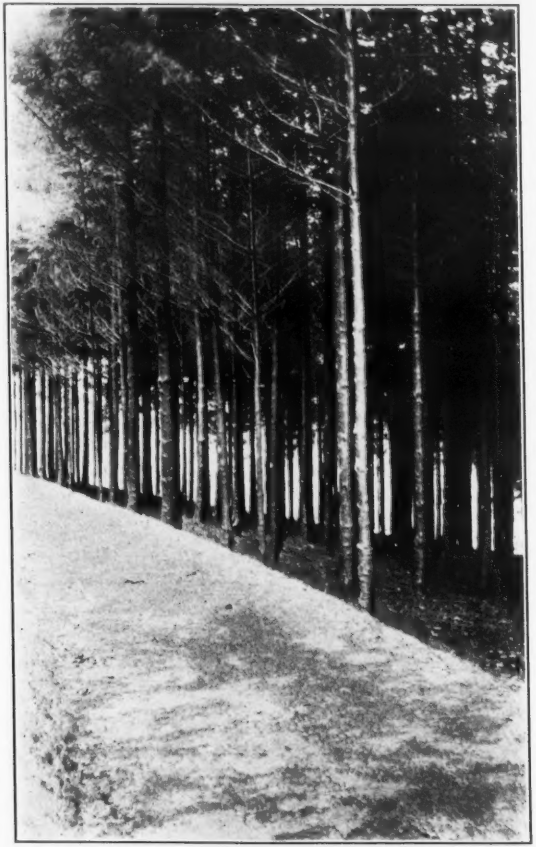
Dimensions, 6½ in by 10 in. by 8½ feet. Value, $1.20 to $1.44 each. These pine ties do not require creosoting, as they consist chiefly of heart wood

Americans cruising in the Black Forest. The forty students composing the Biltmore School were divided into four parties, each being assigned a large tract of fir and spruce



Cruising party looking over the tract and "thinking" before beginning strip estimates

Caliper men, chain man and tally man among the firs and spruces of the Black Fores:



Douglas fir. Experimental plot in Heidelberg Forest. Twenty-s x years old; Sixty-two cords per acre. Outplanted at three years of age. Adjoining are plots of other American trees

Lifting machine in the Odenwald. The Americans are in the background inspecting methods of transplanting. Eight thousand two-year-old Scotch pine are outplanted per acre at a cost of $16, the seedlings costing 15 cents per thousand

Transplanting machine in the Odenwald. One man and four girls transplant 18,000 seedlings daily

Douglas fir. 45 years old, 20 inches diameter breast high, on private estate of 6.000 acres in the Odenwald

THE WEEKS BILL IN CONGRESS

The Story of Its Passage in the House of the Sixty-first Congress, and of the Senate Filibuster

IN THIS magazine (then known as *Conservation*) for May, 1909, there was published a brief history of "The Fight for the Appalachian Forests," bringing the story up to that time, and closing with this statement: "The issue is now clearly before Congress and the country. It rests on the vital principle of conservation of natural resources, and will not down. The people have unmistakably asked for legislation on this subject. They will demand it of the Sixty-first Congress."

The first session of the Sixty-first Congress has closed, and it is possible now to write another chapter of this history—unfortunately, not the final one.

Mr. Weeks took his bill which had been before the last Congress and eliminated one or two features which, while they seemed wise to him, were unimportant and made enemies for the bill—especially the provision designating the income from the national forests as the source of the funds for purchasing the new forests. This modified bill, agreed to by the best friends of the proposed legislation in both houses, was introduced during the extra session in the House by Mr. Weeks, and in the Senate by Senator Gallinger. In both bodies it was referred to the committees on agriculture, but the Senate reference was later changed to the committee on forest reservations, the committee which had previously had charge of it, and of which Senator Brandegee of Connecticut is chairman. The Connecticut senator had been subjected to some criticism at home for lack of interest in this bill and was quite ready to take it into his committee and assume charge of it.

The policy of the senators was, however, to await the action of the House—a policy that proved to be a tactical mistake, however good the reasons may have been for it. It produced a feeling in the country outside, where interest in the bill was keen, that the Senate's interest in it was perfunctory. The senators who were most actively enlisted for the bill, however, gave assurance that the bill could be reported and passed in that body at any time. The statement was repeatedly made, up to the last hours of the session, "We have the votes." The policy of delay was encouraged by the President, who wished the bill to wait until what he regarded as the more urgent administration measures were disposed of.

Meanwhile, action dragged in the House. The members of the committee on Agriculture were known to be divided eight to seven, with three new members whose position was unknown. Of the seven one was Chairman Scott, an uncompromising enemy of the bill, who would do everything within the limit of the law to defeat it. The committee did not find time for the hearing that had been asked for on the bill until February 23. This resolved itself largely into a discussion by experts, chiefly Professors Swain, Roth, and Glenn, of the pronouncements of Willis L. Moore, chief of the Weather Bureau, and certain officers of the Engineer Corps, in regard to the influence of forests upon streamflow. So effective were the attacks upon the views of these officials that they were given an opportunity to appear before the committee on the 1st and 2d of March to defend their own position.

Reports of these discussions and papers more fully presenting the case, were published in this magazine in March and April, and it is not necessary to review them at this time.

Some time elapsed without any further action being taken by the committee. Finally, a vote was taken and all of the new members voted for the bill, making the standing of the committee eleven for and seven against. It is interesting to note in this connection that the advocates of this measure have never failed to convince a majority of any committee they have appeared before in either house that the measure is a good one and should become a law.

Within a few days of the action by the committee, the report of the majority, which had been put in charge of Mr. Lever of South Carolina and Mr. Plumley of Vermont, was ready to submit to the House, but that of the minority was delayed several days. This was in charge of Chairman Scott, and his reason for the delay was pressure of other work, but every day's delay hindered the passage of the bill, which Mr. Scott was certainly not anxious to further.

There are many times in the course of legislation when a minority can be just as effective as a majority, if obstruction is all that is needed.

On the 15th of April, the report was made and committed to the committee of the whole house on the state of the Union and ordered to be printed. It was then hoped that an early opportunity would come to bring it up on calendar Wednesday, when, under the rules, each committee in turn has an opportunity to call up bills for consideration. It soon developed, however, that the turn of agriculture on the calendar had passed and was not likely to come again, owing to the number of important bills to come from other committees that had the call before it.

The friends of the bill outside of Congress meanwhile grew anxious, and appeals for action began to pour in upon the members, especially those from the New England states. It had become evident that the only hope for action was in a special rule, which must be obtained from the new rules committee of ten. It was no longer a question of securing the consent of the Speaker, who is not even a member of the new committee. Of the ten members only one, Mr. Lawrence of Massachusetts, was in favor of the bill, but so well was the case urged by Mr. Weeks, Mr. Lawrence, Mr. Currier, Mr. Lever, and their supporters, that the committee consented to bring in a rule.

Even then so much business intervened that days passed before the rule was reported, and it was not until the afternoon of June 24 that Mr. Smith of Iowa introduced the rule for the committee and yielded the floor to Mr. Lawrence of Massachusetts, who made an admirable speech, brief, clear, and pointed, in support of the rule and the bill. Concluding, he said:

> It would be interesting to consider at length just what is being done for the preservation and development of forests in France, Italy, Switzerland, Austria, Great Britain, Sweden, Norway, Denmark, Germany, and Japan. Such consideration would convince us that America has been very slow to realize the importance of this work. We are much behind other first-class countries.
>
> But we are waking up, and the passage of this bill will be a long step forward. I wish it might have carried a larger appropriation and provided for work covering a longer period. Its advocates, however, are sure that the expenditure here provided for will remove all doubt as to the wisdom of the policy and that it will be followed by much larger appropriations, which will permit more rapid and thorough development. This is practical conservation. It proposes to save what the people want saved, and the proposition should receive the hearty and unanimous support of the members of this house.

The rule was adopted on a roll call, 154 voting in favor of consideration and ninety-nine against. Twenty-two answered present, and 114 did not vote. Several opponents of the bill were fair enough to vote for its consideration, but others fought the measure even at this point, and Mr. Rucker of Missouri began the dilatory tactics with which he endeavored up to the final passage of the bill to obstruct it and to tire out

the House. Conference reports also intervened, and it was late in the afternoon of a very hot day when the bill finally came up in committee of the whole. Mr. Rucker continued his dilatory tactics, but Mr. Weeks and Mr. Lever held control of the committee and of the House through it all, and to Mr. Weeks, when he was given the floor by Mr. Lever, to speak for the bill which has been known by his name and to which he has given so much patient effort, diplomacy, and parliamentary skill, was accorded the rare tribute of genuine applause from all over the house.

Following his brief and straightforward statement, an attempt was made to put the matter over until the following day, but the men who had determined to pass that bill could not be shaken, and it was only when an agreement to go on in the evening was secured that a recess was taken until eight o'clock.

A large number of members took part in the general debate and in the debate under the five-minute rule. The principal argument against the bill was by Mr. Scott of Kansas, chairman of the committee on agriculture. Mr. Scott based his objections chiefly upon the allegation, which he claimed was supported by the most competent engineering testimony, that the forests at the headwaters of streams do not exercise any appreciable effect upon the navigability of the streams. Mr. Scott reached this conclusion by the simple and convenient intellectual process of eliminating all conflicting testimony and accepting only that which fitted his prejudgment.

Mr. Tawney of Minnesota discovered a peril to the structure of our government in the make-up of the commission under the bill, in that it included members of the executive and legislative branches, thus transgressing the complete separation decreed by the fathers.

A point made much of in the House debate and by Senator Burton in his filibuster in the Senate, was the fact that the bill was brought forward in the closing hours of the session and an attempt made to rush it through without adequate discussion. This taunt came with bad grace from the men who for years have used every means in their power to prevent the consideration of this or the similar measures that preceded it, and have only yielded when they were fought to a finish by a majority that was the final product of ten years of extraordinarily full discussion in Congress and outside, years in which several official government investigations have been made by Congress, resulting in reports which have been available in printed form for varying periods of time.

If there was not sufficient information, and if there had not been sufficient discussion, these opponents of the bill were the responsible parties, and the ignorance which they claim argues their own failure to do their duty in considering a great public measure. There has been no desire on the part of its friends to hold it back. The truth is that the opponents of the bill were driven to the last resort of opposition in fighting a plan which had ample precedent and ample warrant in the history of our governmental activities, and was so strong that it could only be beaten by delay. They had found arguments against it, not by a survey of all the evidence, but by choosing their own witnesses and belittling those on the opposite side. The speakers in opposition to the bill were, beside Mr. Scott and Mr. Rucker: Mr. Englebright of California, Mr. Howland of Ohio, Mr. Beall of Texas, Mr. Parker of New Jersey, Mr. Sims and Mr. Garrett of Tennessee, Mr. Crumpacker and Mr. Cox of Indiana, Mr. Focht of Pennsylvania, Mr. Southwick of New York, and Mr. Tawney of Minnesota.

The general character of the speeches for the bill was of a higher order. The speeches were more dignified, dealing with facts rather than with abuse of the other side, and always holding steadily to one purpose, to make the strongest possible case for the bill. The closing word for the bill in general debate was a brief, clear, snappy speech by Mr. Lever of South Carolina, who had

charge of the bill for the majority of the committee on agriculture. Those who spoke in favor of the bill, in addition to those who have already been mentioned, were: Mr. Currier of New Hampshire, Mr. Guernsey of Maine, Mr. Small of North Carolina, Mr. Burnett of Alabama, Mr. McCall of Massachusetts, Mr. Austin of Tennessee, Mr. Keliher of Massachusetts, Mr. Thomas of North Carolina, Mr. Cole of Ohio, Mr. Tilson of Connecticut, Mr. Tirrell of Massachusetts, Mr. Gillett of Massachusetts, Mr. Fordney of Michigan, Mr. Mann of Illinois, Mr. Keifer of Ohio, Mr. Saunders of Virginia, and Mr. Davis of Minnesota.

It was late in the evening when debate ended and voting began. Mr. Rucker of Missouri, tenacious in his hopeless attempt at delay, moved to recommit the bill to the committee, and a roll call had to be taken on this motion, which was defeated by a vote of 112 yeas to 131 nays, with seventeen present and 129 not voting.

It was midnight when the final roll call on the passage of the bill ended and the result was declared, the bill having passed the House by 130 to 111. It had been a strong and courageous fight, in the face of odds and of the most determined opposition. At the same time, it detracts in no respect from the work done by members in the House to say that they would never have done it except in response to the vigorous expression of a widespread public demand for the passage of some measure that would make it possible to check the destruction of the forests of the Appalachian system, north and south. The vote is given below in detail, with an analysis:

THE ROLL CALL

The vote on the Weeks Bill in the House of Representatives, June 24, 1910, was as follows (this is a direct transcript from the *Congressional Record):*

YEAS—130

Ames	Esch	Hitchcock	Morgan, Mo.
Austin	Estopinal	Hubbard, W. Va.	Morgan, Okla.
Anthony	Finley	Hughes, N. J.	Murdock
Bell, Ga.	Fish	Hull, Tenn.	Needham
Bennett, N. Y.	Fordney	Johnson, S. C.	Nelson
Bingham	Fornes	Keifer	Nicholls
Borland	Foss, Ill.	Keliher	Norris
Boutell	Foss, Mass.	Kinkaid, Nebr.	O'Connell
Burke, S. Dak.	Foster, Vt.	Kinkead, N. J.	Olcott
Burleigh	Foulkrod	Kustermann	Padgett
Burnett	Gaines	Lamb	Palmer, A. M.
Byrns	Gallagher	Law	Plumley
Calder	Gardner, Mass.	Lawrence	Poindexter
Cary	Gardner, N. J.	Lenroot	Pou
Cocks, N. Y.	Gill, Md.	Lever	Pratt
Cole	Gill, Mo.	Loud	Rainey
Conry	Gillett	Loudenslager	Ransdell, La.
Cooper, Wis.	Graff	Lundin	Reynolds
Coudrey	Graham, Ill.	McCall	Roberts
Covington	Grant	McDermott	Robinson
Craig	Greene	McKinney	Rodenberg
Currier	Griest	McLachlan, Cal.	Saunders
Davidson	Guernsey	McLaughlin, Mich.	Sharp
Davis	Hamilton	Madison	Sheffield
Denby	Havens	Maguire, Nebr.	Slemp
Dodds	Heald	Mann	Small
Driscoll, D. A.	Heflin	Maynard	Sterling
Durey	Higgins	Moon, Tenn.	Sturgiss
Ellerbee	Hill	Morehead	Sulloway

Taylor, Ala.	Wanger	Weeks	Wood, N. J.
Thomas, N. C.	Washburn	Wickliffe	Young, N. Y.
Tilson	Watkins	Wilson, Ill.	
Turnbull	Webb	Wilson, Pa.	

NAYS—111

Adamson	Dixon, Ind.	Houston	Oldfield
Aiken	Driscoll, M. E.	Howard	Olmsted
Alexander, Mo.	Dwight	Howell, Utah	Parker
Barchfeld	Edwards, Ga.	Howland	Payne
Bartlett, Nev.	Ellis	Hubbard, Iowa	Pickett
Beall, Texas	Englebright	Hughes, Ga.	Randell, Texas
Booher	Fassett	Humphrey, Wash.	Rauch
Bradley	Flood, Va.	James	Roddenbery
Brantley	Flood, Ark.	Johnson, Ky.	Rucker, Mo.
Burgess	Focht	Johnson, Ohio	Scott
Burleson	Foster, Ill.	Joyce	Sheppard
Calderhead	Fuller	Kendall	Sherley
Campbell	Gardner, Mich.	Kennedy, Iowa	Simmons
Carlin	Garner, Texas	Knapp	Sisson
Cassidy	Garrett	Korbly	Smith, Cal.
Chapman	Goebel	Lloyd	Southwick
Clark, Mo.	Good	McCreary	Stafford
Cline	Gordon	McKinley, Ill.	Steenerson
Collier	Graham, Pa.	Macon	Stevens, Minn.
Cox, Ind.	Hamer	Malby	Tawney
Crow	Hamlin	Martin, Colo.	Taylor, Colo.
Crumpacker	Hammond	Mays	Taylor, Ohio
Cullop	Hardy	Miller, Minn.	Thomas, Ky.
Dalzell	Hawley	Millington	Thomas, Ohio
Dawson	Hay	Moore, Texas	Tou Velle
Denver	Helm	Morrison	Volstead
Dickinson	Henry, Texas	Moss	Woods, Iowa
Dies	Hollingsworth	Murphy	

ANSWERED "PRESENT"—13

Carter	Hardwick	Langley	Sparkman
Douglass	Hayes	Sabath	Spight
Gillespie	Kennedy, Ohio	Smith, Iowa	Tirrell
Goldfogle			

NOT VOTING—136

Adair	Hinshaw	Candler	Moon, Pa.
Alexander, N. Y.	Hobson	Kopp	Moore, Pa.
Allen	Howell, N. J.	Kronmiller	Cantrill
Anderson	Huff	Lafean	Capron
Andrus	Hughes, W. Va.	Langham	Clark, Fla.
Ansberry	Hull, Iowa	Latta	Clayton
Ashbrook	Humphreys, Miss.	Lee	Cook
Barclay	Jamieson	Legare	Cooper, Pa.
Barnard	Jones	Lindbergh	Cowles
Barnhart	Kahn	Lindsay	Cox, Ohio
Bartholdt	Kitchin	Livingston	Cravens
Gilmore	Knowland	Longworth	Creager
Glass	Bartlett, Ga.	Lowden	Dent
Godwin	Bates	McCredie	Morse
Goulden	Bennett, Ky.	McGuire, Okla.	Moxley
Gregg	Boehne	McHenry	Mudd
Gronna	Bowers	McKinlay, Cal.	Nye
Hamill	Broussard	McMorran	Page
Hanna	Brownlow	Madden	Palmer, H. W.
Harrison	Burke, Pa.	Martin, S. Dak.	Parsons
Haugen	Butler	Miller, Kans.	Patterson
Henry, Conn.	Byrd	Mondell	Pearre

Peters	Sherwood	Garner, Pa.	Thistlewood
Pray	Sims	Slayden	Townsend
Prince	Dickson, Miss.	Smith, Mich.	Underwood
Pujo	Diekema	Smith, Texas	Vreeland
Reeder	Draper	Snapp	Wallace
Reid	Edwards, Ky.	Sperry	Weisse
Rhinock	Elvins	Stanley	Wheeler
Richardson	Fairchild	Stephens, Texas	Wiley
Riordan	Ferris	Sulzer	Willett
Rothermel	Fitzgerald	Swasey	Woodyard
Rucker, Colo.	Foelker	Talbott	Young, Mich.
Shackleford	Fowler	Tener	The Speaker

So the bill was passed.

The following additional pairs were announced:

Until further notice: Mr. Bradley with Mr. Goulden.

On this vote: Mr. Clark of Florida, in favor, with Mr. Sims, against; Mr. Sulzer, in favor, with Mr. Boehne, against; Mr. Morse, in favor, with Mr. Slayden, against; Mr. Swasey, in favor, with Mr. Byrd, against; Mr. Diekema, in favor, with Mr. Vreeland, against; Mr. Kronmiller with Mr. Sabath.

Mr. Spight—Mr. Speaker, I wish to know if the gentleman from Connecticut (Mr. Henry) is recorded on this vote.

The Speaker—He is not.

Mr. Spight—I voted "No" with the understanding that the gentleman from Connecticut (Mr. Henry) would vote for this bill if he were present, and I thought he was going to vote for it. I want to withdraw my vote and answer "Present."

Mr. Tirrell—Mr. Speaker, I would inquire if the gentleman from North Carolina (Mr. Kitchin) is recorded?

The Speaker—He is not.

Mr. Tirrell—I withdraw my vote and answer "Present."

The result of the vote was announced as above recorded.

On motion of Mr. Lever, a motion to reconsider the vote by which the bill was passed was laid on the table.

THE INDIVIDUAL RECORD BY STATES

Below are given the individual records of the representatives, arranged by states and districts. The figure preceding each name is the number of the congressional district of the member. The index numbers following each name have the following meanings:

[1]Voted YES in the Sixtieth Congress.
[2]Voted No in the Sixtieth Congress.
[3]Did not vote in the Sixtieth Congress.
[4]New member; predecessor voted YES.
[5]New member; predecessor voted No.
[6]New member; predecessor did not vote.
Names in italics are those of Democrats.

ALABAMA

Yes	*No*	*Not voting*
1. *G. W. Taylor*[3]		2. *Stanley H. Dent, Jr.*[4]
4. *William B. Craig*[1]		3. *Henry D. Clayton*[2]
5. *James T. Heflin*[1]		6. *R. P. Hobson*[1]
7. *John L. Burnett*[1]		8. *W. Richardson*[1]
		9. *O. W. Underwood*[2]

ARKANSAS

6. *J. T. Robinson*[1]	1. *Robert B. Macon*[2]	4. *Ben Cravens*[3]
	2. *W. A. Oldfield*[4]	5. *Charles C. Reid*[3]
	3. *John C. Floyd*[3]	7. *R. M. Wallace*[2]

CALIFORNIA

6. J. C. Needham[2]
7. James McLachlan[1]
1. W. F. Englebright[2]
8. S. C. Smith[2]
2. D. E. McKinlay[2]
3. J. R. Knowland[2]
4. Julius Kahn[3]
5. E. A. Hayes[2]*

*Present

COLORADO

At large—*E. T. Taylor*[3]
2. *John A. Martin*[5]
1. *A. W. Rucker*[3]

CONNECTICUT

At large—John Q. Tilson[4]
3. Edwin W. Higgins[1]
4. Ebenezer J. Hill[1]
1. E. S. Henry[1]*
2. N. D. Sperry[1]

*Paired with a negative vote

DELAWARE

At large—W. H. Heald[4]

FLORIDA

3. *D. H. Mays*[6]
1. *S. M. Sparkman*[3]*
2. *Frank Clark*[3]

*Present

GEORGIA

9. *Thomas M. Bell*[1]
1. *C. G. Edwards*[3]
2. *S. A. Roddenbery*[6]
3. *D. M. Hughes*[6]
4. *W. C. Adamson*[3]
8. *W. M. Howard*[2]
11. *W. G. Brantley*[2]
5. *L. F. Livingston*[3]
6. *C. F. Bartlett*[2]
7. *Gordon Lee*[1]
10. *T. W. Hardwick*[2]

IDAHO

At large—Thomas R. Hamer[5]

ILLINOIS

2. James R. Mann[1]
3. William W. Wilson[2]
4. *James T. McDermott*[3]
7. Fred Lundin[5]
8. *Thomas Gallagher*[5]
9. H. S. Boutell[3]
10. George E. Foss[3]
14. James McKinney[1]
16. Joseph V. Graff[2]
17. John A. Sterling[3]
20. *Henry T. Rainey*[1]
21. *James M. Graham*[4]
22. William A. Rodenberg[3]
12. Charles E. Fuller[1]
19. William B. McKinley[2]
23. *Martin D. Foster*[2]
24. Pleasant T. Chapman[2]
1. M. B. Madden[2]
5. ***A. J. Sabath***[2]*
6. William J. Moxley[3]
11. H. M. Snapp[2]
13. F. O. Lowden[2]
15. George W. Prince[2]
18. Joseph G. Cannon[2]
25. Napoleon B. Thistlewood[3]

*Present.

INDIANA

2. *W. A. Cullop*[3]
3. *Willis E. Cox*[2]
4. *Lincoln Dixon*[2]
5. *Ralph W. Moss*[5]
7. *C. A. Korbly*[5]
9. *M. A. Morrison*[4]
10. E. D. Crumpacker[2]
11. *G. W. Rauch*[3]
12. *Cyrus Cline*[4]
1. *J. W. Boehne*[4]
6. W. O. Barnard[6]
8. *J. A. M. Adair*[3]
13. *H. A. Barnhart*[2]

IOWA

1. C. A. Kennedy[2]
2. A. F. Dawson[2]
3. C. E. Pickett[6]
5. James W. Good[3]
6. Nathan E. Kendall[5]
10. Frank P. Woods[5]
11. E. H. Hubbard[2]
4. G. N. Haugen[2]
7. J. A. T. Hull[1]
8. *W. D. Jamieson*[4]
9. W. I. Smith[3]*

*Present

KANSAS

1. D. R. Anthony, Jr.[3]
7. E. H. Madison[1]
8. Victor Murdock[2]
2. Charles F. Scott[2]
3. P. P. Campbell[2]
5. W. A. Calderhead[3]
4. J. M. Miller[2]
6. W. A. Reeder[1]

KENTUCKY

1. *Ollie M. James*[3]
3. *R. Y. Thomas, Jr.*[6]
4. *Ben Johnson*[2]
5. *S. Sherley*[2]
8. *Harvey Helm*[2]
2. *A. O. Stanley*[1]
6. *J. L. Rhinock*[3]
7. *James C. Cantrill*[4]
9. J. B. Bennett[1]
10. J. W. Langley[1]*
11. D. C. Edwards[1]

*Present. Paired with Bartlett of Georgia

LOUISIANA

1. *A. Estopinal*[1]
4. *J. T. Watkins*[1]
5. *J. E. Ransdell*[1]
6. *R. C. Wickliffe*[4]
2. *S. L. Gilmore*[6]
3. *R. F. Broussard*[3]
7. *A. P. Pujo*[2]

MAINE

3. E. C. Burleigh[1]
4. F. E. Guernsley[4]
1. A. L. Allen[1]
2. J. P. Swasey[4]*

*Paired with a negative vote

MARYLAND

1. *J. H. Covington*[6]
4. *John Gill, Jr.*[2]
2. *J. F. C. Talbott*[1]
3. J. Kronmiller[6]
5. S. E. Mudd[1]
6. George A. Pearre[3]

MASSACHUSETTS

1. G. P. Lawrence[1]
2. F. H. Gillett[1]
3. C. G. Washburn[1]
5. Butler Ames[3]
6. A. P. Gardner[1]
7. E. W. Roberts[1]
8. S. W. McCall[1]
9. *J. A. Keliher*[1]
10. *J. F. O'Connell*[1]
12. John W. Weeks[1]
13. W. S. Greene[1]
14. *Eugene N. Foss*[4]
4. C. Q. Tirrell[1]*
11. *A. J. Peters*[1]

*Paired with a negative vote

MICHIGAN

1. Edwin Denby[1]
4. Edward L. Hamilton[1]
8. Joseph W. Fordney[2]
9. James C. McLaughlin[1]
10. George A. Loud[4]
11. Francis H. Dodds[4]
3. Washington Gardner[2]
2. C. E. Townsend[1]
5. G. J. Diekema[1]*
6. Samuel W. Smith[3]
7. H. McMorran[1]
12. H. O. Young[2]

*Paired with a negative vote

MINNESOTA

3. Charles R. Davis[1]

1. James A. Tawney[2]
2. *W. S. Hammond*[2]
4. F. C. Stevens[2]
7. A. J. Volstead[2]
8. Clarence B. Miller[4]
9. Halvor Steenerson[2]

5. F. M. Nye[2]
6. C. A. Lindbergh[2]

MISSISSIPPI

4. *T. U. Sisson*[5]
8. *J. W. Collier*[6]

1. *E. S. Candler, Jr.*[1]
2. *Thomas Spight*[2]*
3. *B. G. Humphreys*[1]
5. *Adam M. Byrd*[3]
6. *Eaton J. Bowers*[2]
7. *William A. Dickson*[6]

*Paired with affirmative vote

MISSOURI

5. *W. P. Borland*[6]
11. *Patrick F. Gill*[4]
12. Harry M. Coudrey[1]
15. Charles H. Morgan[5]

1. *James T. Lloyd*[2]
2. *William W. Rucker*[2]
3. *James W. Alexander*[2]
4. *Charles F. Booher*[3]
6. *C. A. Dickinson*[5]
7. *Courtney W. Hamlin*[2]
9. *Champ Clark*[2]
14. Charles A. Crow[5]
16. Arthur P. Murphy[6]

8. *D. W. Shackleford*[2]
10. Richard Bartholdt[1]
13. Politte Elvins[6]

MONTANA

Charles N. Pray[2]

NEBRASKA

1. *John A. Maguire*[4]
2. *Gilbert M. Hitchcock*[1]
5. George W. Norris[3]
6. Moses P. Kinkaid[1]

3. *James P. Latta*[5]
4. E. H. Hinshaw[1]

NEVADA

At large—*G. A. Bartlett*[3]

NEW HAMPSHIRE

1. C. A. Sulloway[1]
2. Frank D. Currier[1]

NEW JERSEY

1. H. C. Loudenslager[2]
2. J. J. Gardner[1]
4. Ira W. Wood[1]
6. *William Hughes*[1]
9. *E. F. Kinkead*[6]

7. R. W. Parker[2]

3. B. F. Howell[2]
5. C. N. Fowler[2]
8. William H. Wiley[6]
10. *James A. Hamill*[5]

NEW YORK

1. William W. Cocks[1]
4. Charles B. Law[1]
5. Richard Young[4]
6. William M. Calder[1]
11. *Charles W. Fornes*[1]
12. *Michael F. Conry*[6]
15. J. V. V. Olcott[3]

20. T. W. Bradley[3]
23. G. N. Southwick[2]
26. George R. Malby[2]
27. C. S. Millington[5]
28. Charles L. Knapp[3]
29. M. E. Driscoll[2]
30. J. W. Dwight[2]

2. *George H. Lindsay*[2]
3. Otto G. Foelker[3]
7. *J. J. Fitzgerald*[2]
8. *D. J. Riordan*[3]
9. *H. M. Goldfogle*[3]*
10. *William Sulzer*[3]†
13. Herbert Parsons[2]

NEW YORK—Continued

17. W. S. Bennet[1]
21. Hamilton Fish[6]
25. Cyrus Durey[2]
32. James S. Havens[4]
35. *D. A. Driscoll*[4]
31. Sereno E. Payne[2]
33. J. S. Fassett[2]
34. J. S. Simmons[4]
14. *William Willett, Jr.*[1]
16. *F. B. Harrison*[1]
18. *Joseph A. Goulden*[3]
19. John E. Andrus[2]
22. William H. Draper[1]
24. G. W. Fairchild[2]
36. De A. S. Alexander[3]
37. E. B. Vreeland[2]‡

*Present
†Paired with a negative vote
‡Paired with an affirmative vote

NORTH CAROLINA

1. *John H. Small*[3]
3. *Charles R. Thomas*[1]
4. *Edward W. Pou*[1]
5. John M. Morehead[6]
9. *Edwin Y. Webb*[1]
10. John G. Grant[4]
2. *Claude Kitchin*[2]‡
6. *H. L. Godwin*[1]
7. *Robert N. Page*[1]
8. Charles H. Cowles[5]

‡Paired with an affirmative vote

NORTH DAKOTA

At large—A. L. Gronna[2]
At large—L. B. Hanna[6]

OHIO

7. J. Warren Keifer[2]
8. Ralph D. Cole[1]
14. *William G. Sharp*[6]
2. Herman P. Goebel[2]
4. *William E. Tou Velle*[2]
6. *Matthew R. Denver*[1]
10. Adna R. Johnson[6]
12. Edward L. Taylor, Jr.[1]
15. James Joyce[3]
16. David A. Hollingsworth[6]
19. William A. Thomas[1]
20. Paul Howland[2]
21. James H. Cassidy[6]
1. Nicholas Longworth[1]
3. *James M. Cox*[4]
5. *T. T. Ansberry*[3]
9. *I. R. Sherwood*[2]
11. Albert Douglas[1]*
13. *C. C. Anderson*[6]
17. *W. A. Ashbrook*[1]
18. James Kennedy[1]*

*Present

OKLAHOMA

2. Dick T. Morgan[6]
1. Bird McGuire[2]
3. Charles E. Creager[5]
4. *Charles D. Carter*[2]
5. *Scott Ferris*[2]

OREGON

1. Willis C. Hawley[2]
2. William R. Ellis[2]

PENNSYLVANIA

1. Harry H. Bingham[3]
5. William W. Foulkrod[3]
8. Irving P. Wanger[3]
9. William W. Griest[4]
10. *Thomas D. Nicholls*[4]
14. Charles C. Pratt[6]
15. *William B. Wilson*[3]
6. George D. McCreary[2]
17. Benjamin K. Focht[3]
18. M. E. Olmsted[3]
29. William H. Graham[3]
30. John Dalzell[2]
32. A. J. Barchfeld[2]
2. Joel Cook[1]
3. J. Hampton Moore[2]
4. Reuben O. Moon[3]
7. Thomas S. Butler[2]
11. Henry W. Palmer[4]
12. Alfred B. Garner[6]
13. *John H. Rothermel*[6]

PENNSYLVANIA—Continued

19. John M. Reynolds[2]
26. *A. M. Palmer*[4]

16. *John G. McHenry*[2]
20. Daniel F. Lafean[3]
21. Charles F. Barclay[3]
22. George F. Huff[2]
23. Allen F. Cooper[1]
24. John K. Tener[4]
25. Arthur L. Bates[1]
27. John N. Langham[5]
28. Nelson P. Wheeler[2]
31. James F. Burke[3]

RHODE ISLAND

1. W. P. Sheffield[6]

2. A. B. Capron[1]

SOUTH CAROLINA

4. *J. T. Johnson*[1]
5. *David E. Finley*[1]
6. *James E. Ellerbe*[1]
7. *Asbury F. Lever*[1]

3. *Wyatt Aiken*[2]

1. *George S. Legare*[3]
2. *J. O. Patterson*[2]

SOUTH DAKOTA

At large—Charles H. Burke[4]

At large—Eben W. Martin[1]

TENNESSEE

2. Richard W. Austin[4]
3. *John A. Moon*[1]
4. *Cordell Hull*[2]
6. *Joseph W. Byrns*[4]
7. *Lemuel P. Padgett*[1]

5. *W. C. Houston*[3]
9. *F. J. Garrett*[2]
10. *G. W. Gordan*[2]

1. W. P. Brownlow[1]
8. *Thetus W. Sims*[2]

TEXAS

1. *Morris Sheppard*[2]
2. *Martin Dies*[4]
4. *C. B. Randell*[5]
5. *Jack Beall*[5]
6. *Rufus Hardy*[2]
8. *John M. Moore*[2]
9. *George F. Burgess*[2]
10. *A. S. Burleson*[3]
11. *Robert L. Henry*[3]
15. *J. N. Garner*[2]

7. *A. W. Gregg*[2]
12. *O. W. Gillespie*[1]*
13. *John H. Stephens*[1]
14. *James L. Slayden*[2]
16. *W. R. Smith*[2]

Gordon Russell[2], Third district, does not appear in the Record.

*Answered "Present"

UTAH

At large—Joseph Howell[2]

VERMONT

1. David G. Foster[1]
2. Frank Plumley[4]

VIRGINIA

2. *H. L. Maynard*[1]
3. *John Lamb*[1]
4. *Robert Turnbull*[6]
5. *E. W. Saunders*[3]
9. Charles B. Slemp[1]

7. *James Hay*[3]
8. *C. C. Carlin*[3]
10. *Henry D. Flood*[1]

1. *William A. Jones*[1]
6. *Carter Glass*[1]

WASHINGTON

3. Miles Poindexter[5]

1. W. E. Humphrey[2]

2. W. W. McCredie[6]

WEST VIRGINIA

1. W. P. Hubbard[1]
2. George C. Sturgiss[1]
3. Joseph H. Gaines[3]
4. H. C. Woodyard[3]
5. James A. Hughes[3]

WISCONSIN

1. Henry A. Cooper[1]
2. John M. Nelson[1]
3. Arthur W. Kopp[3]
4. William J. Cary[3]
5. W. H. Stafford[2]
6. *C. H. Weisse*[3]
7. John J. Esch[1]
8. James H. Davidson[1]
9. G. Küstermann[2]
10. Elmer A. Morse[1]
11. Irvine L. Lenroot[3]

WYOMING

At large—F. W. Mondell[3]

SUMMARY BY STATES AND SECTIONS

	Sixtieth Congress			*Sixty-first Congress*		
NEW ENGLAND	*Yeas*	*Nays*	*Not voting*	*Yeas*	*Nays*	*Not voting*
Maine	4	..	..	2	..	2
New Hampshire	2	..	..	2	..	..
Vermont	2	..	..	2	..	..
Massachusetts	13	..	1	12	..	2
Rhode Island	1	..	1	1	..	1
Connecticut	4	..	1	3	..	2
	26	..	3	22	..	7
MIDDLE						
New York	17	11	9	12	10	15
New Jersey	3	4	3	*5	1	4
Pennsylvania	10	12	10	9	6	17
Delaware	1	..	..	1	..	..
	31	27	22	27	17	36
CENTRAL						
Michigan	8	3	1	6	1	5
Ohio	10	5	6	3	10	8
Indiana	3	9	1	..	9	4
Illinois	5	13	6	13	4	8
Wisconsin	5	4	2	7	1	3
Minnesota	2	7	..	1	6	2
Iowa	2	7	2	..	7	4
Missouri	3	9	4	4	9	3
North Dakota	..	1	4	4	9	2
South Dakota	2	1	1	..	..	1
Nebraska	4	1	1	4	..	2
Kansas	2	4	2	3	3	2
Oklahoma	..	4	1	1	..	4
	46	67	27	43	50	48
ROCKY MOUNTAIN AND COAST						
Montana	..	..	1	..	..	1
Wyoming	..	1	..	..	..	1
Colorado	..	3	..	..	2	1
Nevada	..	..	1	..	1	..
Idaho	..	1	..	..	1	..
Utah	..	1	..	..	1	..
Washington	..	3	..	1	1	1
Oregon	..	2	..	..	2	..
California	1	6	1	2	2	4
	1	17	3	3	10	8

SOUTHERN						
Maryland	3	..	3	2	..	4
Virginia	7	1	2	5	3	2
West Virginia	2	..	3	3	..	2
Kentucky	5	3	3	..	5	6
Tennessee	6	4	..	5	3	2
North Carolina	7	2	1	6	..	4
South Carolina	4	1	2	4	1	2
Georgia	2	6	3	1	6	4
Florida	..	..	3	..	1	2
Alabama	6	2	1	4	..	5
Mississippi	2	3	3	..	2	6
Louisiana	4	1	1	4	..	3
Arkansas	2	2	3	1	3	3
Texas	3	11	2	..	10	5
	53	36	30	35	34	50

HOW THE HOUSE DIVIDED POLITICALLY

	Yea		*Nay*		*Not voting*	
	R.	D.	R.	D.	R.	D.
Alabama	..	4	..	..	..	5
Arkansas	..	1	..	3	..	3
California	2	..	2	..	4	..
Colorado	..	..	..	2	..	1
Connecticut	3	..	..	..	..	2
Delaware	1	..	..	..	..	..
Florida	..	..	..	1	..	2
Georgia	..	1	..	6	..	4
Idaho	..	..	1	..	..	..
Illinois	9	4	3	1	7	1
Indiana	..	..	1	8	1	3
Iowa	..	..	7	..	3	1
Kansas	3	..	3	..	2	..
Kentucky	..	..	..	5	3	3
Louisiana	..	4	..	..	..	3
Maine	2	..	..	..	2	..
Maryland	..	2	..	..	3	1
Massachusetts	9	3	..	..	1	1
Michigan	6	..	1	..	5	..
Minnesota	1	..	5	1	2	..
Mississippi	..	..	..	2	..	6
Missouri	2	2	2	7	2	1
Montana	..	..	..	..	1	..
Nebraska	2	2	..	..	1	1
Nevada	..	..	..	1	..	..
New Hampshire	2	..	..	..	..	..
New Jersey	3	2	1	..	3	1
New York	9	3	10	..	7	8
North Carolina	2	4	..	..	1	3
North Dakota	..	..	..	..	2	..
Ohio	2	1	8	2	3	5
Oklahoma	1	..	..	..	2	2
Oregon	..	..	2	..	..	..
Pennsylvania	6	3	6	..	15	2
Rhode Island	1	..	..	..	..	2
South Carolina	..	4	..	1	..	2
South Dakota	1	..	..	..	..	1
Tennessee	1	4	..	3	1	1
Texas	..	..	..	10	..	5
Utah	..	..	1	..	..	..
Vermont	2	..	..	..	..	..
Virginia	1	4	..	3	..	2

Washington	1	..	1	..	1	..
West Virginia	3	..	..	..	2	..
Wisconsin	7	..	1	..	2	1
Wyoming	..	..	..	..	..	1
	82	48	55	56	76	74

WHAT TWO VOTES SHOW

In the two votes taken on the Weeks bill, that in the Sixtieth Congress and that in the Sixty-first, all but fifty-two members of the present House have gone on record. Owing to the conditions under which the vote was taken in the present House, many of the members having left Washington, the vote was lighter than that in the Sixtieth Congress. A comparison of the individual records, as shown in the preceding statement, show that there were twelve changes from "No" to "Yes"—three in Illinois, two in Pennsylvania, and one each in California, Kansas, Michigan, New Jersey, New York, Ohio, and Wisconsin. There were five changes from "Yes" to "No"—three in Ohio, one in Illinois, and one in Virginia. This takes account only of personal votes, and does not include the votes of new members whose predecessors may have voted in the same or in a different way. Considering this individual record, it is interesting to tabulate the standing of the present House as shown by the two record votes. This is given in the following table. In making up these figures, members who voted differently in the two Congresses are placed according to their last vote. Those who did not vote this year, but who did vote in the Sixtieth Congress, are placed according to their vote at that time. This gives a fair estimate, and it is evident that very few changes would have occurred.

	Yea	*Nay*	*Non-committal*
Alabama	6	2	1
Arkansas	1	4	2
California	2	5	1
Colorado	..	2	1
Connecticut	5	..	..
Delaware	1	..	..
Florida	..	1	2
Georgia	2	8	1
Idaho	..	1	..
Illinois	14	9	2
Indiana	..	11	2
Iowa	1	8	2
Kansas	4	4	..
Kentucky	4	5	2
Louisiana	4	1	2
Maine	4	..	..
Maryland	4	..	2
Massachusetts	14	..	..
Michigan	9	2	1
Minnesota	1	8	..
Mississippi	2	4	2
Missouri	5	10	1
Montana	..	..	1
Nebraska	5	1	..
Nevada	..	1	..
New Hampshire	2	..	..
New Jersey	5	3	2
New York	19	14	4
North Carolina	8	1	..
North Dakota	..	1	1
Ohio	7	11	3
Oklahoma	1	3	1
Oregon	..	2	..
Pennsylvania	12	11	8
Rhode Island	2	..	..
South Carolina	4	1	2
South Dakota	2	..	..
Tennessee	6	4	..
Texas	2	14	..
Utah	..	1	..
Vermont	2	..	..
Virginia	7	3	..
Washington	1	1	1
West Virginia	3	..	2
Wisconsin	8	1	2
Wyoming	..	1	..
	179	159	51

IN THE SENATE

While this successful fight was being waged in the House, the bill had come up in the Senate, and very different and very unexpected conditions developed there. On the 22d of June, Mr. Brandegee moved the consideration of the bill, which was popularly known in that body as the Gallinger bill. On a roll call this was voted forty-eight to sixteen, with twenty-eight senators not voting. This made the bill the unfinished business of the Senate, and Senator Brandegee at that time contented himself with putting in the bill, together

with the report of the committee on forest reservations and the protection of game, and the report by the Secretary of Agriculture of 1907 on the examination of the Appalachian and White Mountain watersheds. This made these documents a part of the record and put them in printed form before the senators on the following day.

At two o'clock on Thursday, the 23d, the unfinished business was taken up and the bill read. Senator Burton of Ohio at once entered upon obstructive tactics. Senator Brandegee presented the bill with a speech in its favor, but was subjected to frequent interruptions by Senator Burton, assisted by Senator Newlands. It became evident very early in the discussion that a few senators were playing for time.

Following Senator Brandegee's speech, Senator Newlands secured the floor and proposed an amendment to strike out all after the enacting clause and to substitute a bill of his own providing for a conservation commission. In support of this, Mr. Newlands made a long argument, some parts of which were more or less pertinent to the question which he was supposed to discuss. The discussion of the bill was also interrupted by conference reports at intervals and some of these occupied considerable time. Senator Stone of Missouri offered an amendment providing for the survey of certain swamp lands in the states of Missouri, Arkansas, and Louisiana, and his argument on this amendment was made somewhat at length.

Finally, atfer a long-drawn-out session, a quorum failing, the Senate adjourned at a little after seven o'clock. On the following day, when the hour for unfinished business arrived, the consideration of the bill was resumed and a desultory discussion followed in the intervals of other business. On Saturday, when it became evident that the filibustering senators would hold their ground, negotiations were entered into for an agreement to secure a vote at the next session. The House bill, having passed that body and been sent to the Senate, was substituted for the Senate bill as unfinished business. Having secured this result, Senator Brandegee made the following statement:

> This being the unfinished business, I, a few minutes ago, made a request that the Senate should vote upon it before adjournment. There was objection. The senator from Ohio stated that there were other senators who desired to be heard, and he had no idea that it could be finally acted upon at the present session. It has been perfectly evident to everybody from what has been going on here ever since we have had this bill under discussion that it could not be passed at this session. I am satisfied, and I think every senator on this floor is satisfied, that it is hopeless, in view of the present situation, to press the measure further upon the attention of the Senate at this time.
>
> In view of that fact, and not desiring to block other business on this, the last day of the session, I ask unanimous consent that upon February 15, 1911, the Senate shall vote upon all amendments pending or to be offered to the bill (H. R. 11798) entitled "A bill to enable any state to cooperate with any other state or states, or with the United States, for the protection of the watersheds of navigable streams, and to appoint a commission for the acquisition of lands for the purpose of conserving the navigability of navigable rivers," and upon the bill itself, before adjournment on that day.

During the discussion on the agreement asked for by Senator Brandegee, Senator Newlands frankly stated that he desired to have matters so arranged that every man who was a friend of the Appalachian proposition would be compelled to vote for the general waterways scheme, which he is interested in having embodied in legislation. Senators Brandegee and Gallinger both stated that they were in favor of enlarging the commission provided for by the bill and extending its functions to include at least some of the things desired by Senator Newlands. Finally, after a long discussion, the request of Senator Brandegee was agreed to and the matter was disposed of for this session by the Senate with that understanding—that the bill with all amendments that may be proposed in the meantime, shall be voted on before adjournment on the 15th of February next. This introduces an uncertain element in the form of possible amend-

ments in regard to which the friends of the bill must be on their guard.

Therefore, the only vote taken in the Senate was that by which the bill was made unfinished business. The division on this was practically what it would have been if the vote had been upon the bill itself. The roll call on this was as follows:

YEAS—48

Bacon	Gallinger
Beveridge	Gamble
Bradley	Guggenheim
Brandegee	Hale
Briggs	Keane
Bulkeley	LaFollette
Burkett	Lodge
Burnham	McEnery
Burrows	Nelson
Carter	Oliver
Chamberlain	Overman
Clapp	Page
Clark, Wyo.	Perkins
Crane	Piles
Cullom	Purcell
Cummins	Scott
Curtis	Simmons
Depew	Smith, S. C.
Dixon	Smoot
du Pont	Stephenson
Elkins	Sutherland
Fletcher	Taylor
Flint	Warner
Frazier	Wetmore

NAYS—16

Bailey	Gore
Bankhead	Heyburn
Bourne	Hughes
Bristow	Jones
Brown	Newlands
Burton	Paynter
Crawford	Percy
Dick	Shively

NOT VOTING—28

Aldrich	Martin
Borah	Money
Clarke, Ark.	Nixon
Clay	Owen
Culberson	Penrose
Daniel	Rayner
Davis	Richardson
Dillingham	Root
Dolliver	Smith, Md.
Foster	Smith, Mich.
Frye	Stone
Johnston	Taliaferro
Lorimer	Tillman
McCumber	Warren

An examination of the detailed vote by states, given below, shows that thirty-nine Republicans voted yes, eight voted no, and thirteen were not recorded. Of the Democrats, nine voted yes, eight voted no, and fifteen were not recorded. An analysis of the vote by sections and states is also given. From this, however, in the case of the Senate, little can be inferred. The question seems to have been largely one of personal judgment, or of personal relations with other senators.

THE SENATE VOTE IN DETAIL

ALABAMA

John H. Bankhead, no.
J. F. Johnston, did not vote.

ARKANSAS

James P. Clarke, did not vote.
Jeff Davis, did not vote.

CALIFORNIA

George C. Perkins, yes.
Frank P. Flint, yes.

COLORADO

Simon Guggenheim, yes.
Charles J. Hughes, Jr., no.

CONNECTICUT

Morgan G. Bulkeley, yes.
Frank B. Brandegee, yes.

DELAWARE

Henry A. du Pont, yes.
Harry A. Richardson, did not vote.

FLORIDA

J. P. Taliaferro, did not vote.
Duncan U. Fletcher, yes.

GEORGIA

Augustus O. Bacon, yes.
Alexander S. Clay, did not vote.

IDAHO

W. B. Heyburn, no.
William E. Borah, did not vote.

ILLINOIS

Shelby M. Cullom, yes.
William Lorimer, did not vote.

INDIANA

Albert J. Beveridge, yes.
Benjamin F. Shively, no.

IOWA

J. P. Dolliver, did not vote.
Albert B. Cummins, yes.

KANSAS

Charles Curtis, yes.
Joseph L. Bristow, no.

KENTUCKY

Thomas H. Paynter, no.
William O. Bradley, yes.

LOUISIANA

Samuel D. McEnery, yes.
Murphy J. Foster, did not vote.

MAINE

Eugene Hale, yes.
William P. Frye, did not vote.

MARYLAND

Isidor Rayner, did not vote.
John W. Smith, did not vote.

MASSACHUSETTS

Henry Cabot Lodge, yes.
W. Murray Crane, yes.

MICHIGAN

Julius C. Burrows, yes.
William A. Smith, did not vote.

MINNESOTA

Knute Nelson, yes.
Moses E. Clapp, yes.

MISSISSIPPI

H. de S. Money, did not vote.
Le Roy Percy, no.

MISSOURI

William J. Stone, did not vote.
William Warner, yes.

MONTANA

Thomas H. Carter, yes.
Joseph M. Dixon, yes.

NEBRASKA

Elmer J. Burkett, yes.
Norris Brown, no.

NEVADA

Francis G. Newlands, no.
George S. Nixon, did not vote.

NEW HAMPSHIRE

Jacob H. Gallinger, yes.
Henry E. Burnham, yes.

NEW JERSEY

John Kean, yes.
Frank O. Briggs, yes.

NEW YORK

Chauncey M. Depew, yes.
Elihu Root, did not vote.

NORTH CAROLINA

F. M. Simmons, yes.
Lee S. Overman, yes.

NORTH DAKOTA

P. J. McCumber, did not vote.
W. E. Purcell, yes.

OHIO

Charles Dick, no.
Theodore E. Burton, no.

OKLAHOMA

Thomas P. Gore, no.
Robert L. Owen, did not vote.

OREGON

Jonathan Bourne, Jr., no.
George E. Chamberlain, yes.

PENNSYLVANIA

Boies Penrose, did not vote.
George T. Oliver, yes.

RHODE ISLAND

Nelson W. Aldrich, did not vote.
George P. Wetmore, yes.

SOUTH CAROLINA

B. R. Tillman, did not vote.
E. D. Smith, yes.

SOUTH DAKOTA

Robert J. Gamble, yes.
C. I. Crawford, no.

TENNESSEE

James B. Frazier, yes.
Robert L. Taylor, yes.

TEXAS

C. A. Culberson, did not vote.
J. W. Bailey, no.

UTAH

Reed Smoot, yes.
George Sutherland, yes.

VERMONT

W. P. Dillingham, did not vote.
Carroll S. Page, yes.

VIRGINIA

John W. Daniel did not vote.
Thomas S. Martin, did not vote.

WASHINGTON

Samuel H. Piles, yes.
Wesley L. Jones, no.

WEST VIRGINIA

Stephen B. Elkins, yes.
Nathan B. Scott, yes.

WISCONSIN

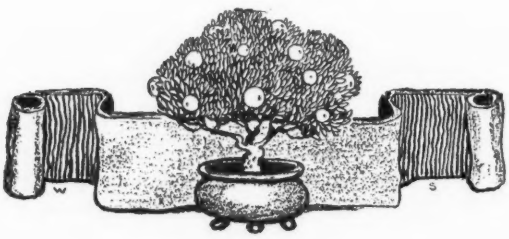
R. M. LaFollette, yes.
Isaac Stephenson, yes.

WYOMING

Francis E. Warren, did not vote.
C. D. Clark, yes.

THE VOTE BY STATES AND SECTIONS

	Yea	*Nay*	*Not voting*
NEW ENGLAND			
Maine	1	..	1
New Hampshire	2	..	..
Vermont	1	..	1
Massachusetts	2	..	..
Rhode Island	1	..	1
Connecticut	2	..	..
	9	..	3
MIDDLE			
New York	1	..	1
New Jersey	2	..	..
Pennsylvania	1	..	1
Delaware	1	..	1
	5	..	3
CENTRAL			
Michigan	1	..	1
Ohio	..	2	..
Indiana	1	1	..
CENTRAL—Continued			
Illinois	1	..	1
Wisconsin	2	..	..
Minnesota	2	..	..
Iowa	1	..	1
Missouri	1	..	1
North Dakota	1	..	1
South Dakota	1	1	..
Nebraska	1	1	..
Kansas	1	1	..
Oklahoma	..	1	1
	13	7	6
ROCKY MOUNTAIN AND COAST			
Montana	2	..	..
Wyoming	1	..	1
Colorado	1	1	..
Nevada	..	1	1
Idaho	..	1	1
Utah	2	..	..
Washington	1	1	..
Oregon	1	1	..
California	2	..	..
	10	5	3
SOUTHERN			
Maryland	..	..	2
Virginia	..	..	2
West Virginia	2	..	..
Kentucky	1	1	..
Tennessee	2	..	..
North Carolina	2	..	..
South Carolina	1	..	1
Georgia	1	..	1
Florida	1	..	1
Alabama	..	1	1
Mississippi	..	1	1
Louisiana	1	..	1
Arkansas	..	..	2
Texas	..	1	1
	11	4	13



AGENCIES FOR THE RESTORATION AND CONSERVATION OF FORESTS

By S. B. ELLIOTT

Member of Pennsylvania State Forest Reservation Commission

EVERY student of the history of nations is aware that the destruction of the forests over any great expanse of a populated country has led to soil conditions there which now show little better than absolute barrenness; and he is also well aware that the intellectual condition of the inhabitants of such regions verges on barbarism. He is likewise cognizant of the converse fact that the countries which have conserved their forests in usefulness have also maintained the fertility of the soil, are enjoying abundant prosperity, and stand high in intellectual, moral, and social well-being.

It certainly is not necessary to show at length that this assertion is true, for even the casual observer must see that it is; and whoever seriously doubts it needs only to glance at the conditions of several of the Old World countries to be convinced of its accuracy. Assuming it to be an established fact that the destruction of the forests of a country results in barrenness of soil and a low state of civilization, and that the useful conservation of the forests promotes prosperity and high intellectuality, it would be illogical and unreasonable to conclude that an intelligent people, with history before them, will permit such destruction and thereby suffer the inevitable results that it entails. And, further than this, it is safe to conclude that such people will put forth every effort to restore their forests where destroyed and to conserve and maintain them in perpetual usefulness after restoration, for any other course is inconceivable. Accepting this as a settled endeavor of the people of this country, it is left for our consideration, on this occasion, to determine through what agencies the restoration and conservation of our forests can be secured, and by whom and through what instrumentalities, both near and remote, such desirable ends can be brought about.

Not until recent times has the general public given any thought to our forest resources. It has been believed that they were ample to supply all our needs, and that we had only to exploit them, and could do so to any extent; but the irresistible "logic of events," manifesting itself through the growing scarcity of the best grades of lumber, and the rapidly increasing price of all kinds, has forced a consideration of what must be done to avert a timber famine in the near future—a famine which it is but truth to say will surely be felt for a long time, and its severity will be measured by such action as shall be taken to alleviate it.

Realizing that something must be done, it was but natural that the agencies through which it could be brought about should be considered, and the trend of thought, or, to use a somewhat hackneyed phrase, the "consensus of opinion," has designated the national and state governments as the proper parties to begin and carry on the work. Now, while the question of ownership and exploitation of our natural resources is involved in the restoration and conservation of our forests by

NOTE.—This paper was given as a lecture in the valuable course of public lectures on forestry under the auspices of Lehigh University.

government, that debatable subject must be ignored here for the reason that conditions and not theory will determine in the matter of the forests. But this much can and should be said: If conditions were alike, there is no more reason why either national or state governments should grow, maintain, and dispose of forests and forest products than there is that they should grow, harvest, and sell wheat or other products of the soil known as farm crops, a work not recognized as a governmental function. But conditions are unlike; the element of time of maturity enters largely into the case. Farm crops, in the main, mature in one year, while it takes well on toward a century for forests to grow fit to harvest. In one case, the time is well within the limits of the average individual's lifetime; yet that feature does not prevail when he grows trees, but it does when the government engages in it. We do not contemplate the government's death; we assume that it will live for all time, and that it is as much its duty to provide for the future as for the present. For that reason, growing and disposing of the forests of the country should not be classed with the control of other natural resources. Nor is this the only difference. It is no wild shriek when we declare that the forest is the only one of our natural resources that can be perpetuated. It is a living, burning fact, the existence of which all must admit; and it carries with it the obviously greater need to put forth efforts to maintain in perpetuity the only one possible, for in our frantic efforts to exploit our natural resources we are hastening the period of their exhaustion, and when that time is reached development and destruction will have become practically synonymous terms.

In a recent speech at Spokane, President Taft stated that: "The United States government timber land is only about one-fourth the timber land owned by private individuals." He referred to the productive forests and did not include cut-over lands, of which the United States government owns but little. This gives us a basis upon which to approximately determine what our national government can now do toward furnishing a supply of forest products. If the forests of the country are ample in extent, then the government's supply of one-fifth will suffice; if not ample, then that supply may fall far short of the needed amount, a supply which will continue to grow less through exhaustion until new forests can be grown. The question then arises, are they ample? Recent statistics show that we are consuming our forest products more than three times faster than they grow. If this be so, and it undoubtedly is, the forests owned by the United States government will utterly fail in supplying the demands of the country, and that, too, without considering any increase of population or new uses for wood, both of which will inevitably occur; and, furthermore, it must be remembered that some of the timber lands now belonging to the government must be given up for settlement, for forestry must not claim land suitable for agriculture. Thus, the restoration and conservation of our productive forests by the United States government will be greatly restricted unless it shall plant additional ones or purchase them, as advocated in the case of the Southern Appalachian and the White Mountain reservations—a proposition which the judiciary committee of the House of Representatives in Congress has decided would be unconstitutional, unless for the sole and declared purpose of providing for the protection and preservation of the navigable rivers receiving their waters from such areas; and this would probably give no power to harvest the timber; and without that power such areas would be of little value in supplying forest products. It will appear from this that a constitutional amendment will be necessary to enable the government to increase its timber producing forests, unless by planting. That such power should be given, there is no question; but whether it will be, is a matter of uncertainty.

Whether the United States is administering its forests in the best manner possible to produce the fullest yield, is not a point that need now be considered. If it is not, that certainly can be remedied; but those who anticipate larger returns from government lands must bear in mind that most of the timber lands owned by it are in mountainous regions, where intensive forestry will be found extremely difficult, if not impossible, and that much of the present stand must be maintained intact in order to preserve the watersheds of the rivers that are to be used for irrigation. Of course, the government may possibly increase its forest area by planting trees where none now are, and it is gratifying to know that vigorous efforts are being made in that direction. But it must be understood that the forest trees of the Great West are not suited for all locations. In fact, the most important ones have been found to flourish only in their natural habitat.

Notwithstanding that government ownership of our timber lands seems inconsiderable, it may appear in a different light when we compare it with that of European nations where the crown and state of the German Empire own but thirty-three per cent of the productive forests within her borders, the government of France thirteen, and the crown and state of Austria seven; and that, too, where forestry has been systematically carried on for more than 150 years. But for all this, it must not be inferred that any thought is entertained that the United States government should not do all reasonable things within its power to maintain our forests in perpetual usefulness, for it certainly should; but that is not the question under consideration. We are discussing only its ability to do.

When we consider the part that our state governments can and should take in caring for the forests we find a somewhat different condition. Few states now hold land by sovereign right, as does the United States government. Nearly all the older states disposed of their original possessions long ago. If there exist, within any State, forests which do not belong to it, and it shall seek to possess them, the state must purchase them of the owners by agreement, or exercise its right of eminent domain and pay such sums therefor as may be adjudged under legal process. In either case, the cost would, no doubt, be prohibitive. There may be those who would favor such proceedings at any cost, but they should remember that no matter who owns them, such forests must be harvested in the near future to supply the demand for forest products, nor should the power of eminent domain be tyrannically invoked.

So it will be seen that there is little probability that many states will secure productive forests to any appreciable extent. However, the state of New York has purchased quite a large area of such forests, but not one tree therein can be cut until the state's constitution shall be amended; while Pennsylvania, New Jersey, and Minnesota, and possibly one or two other states, have secured some lands upon which there is a young growth coming on, and from which a small amount of timber can soon be harvested; but, in the main, we must wait until forests grow. A change of ownership will help little; the need of the hour is more forests. Therefore, about all that can be consistently and profitably be done by the states in their governmental capacity is to purchase land now practically devoid of forests and grow new ones thereon, and when grown, to so conserve them that they will yield a continuous supply; and this also brings up the question of ownership and exploitation of natural resources by state governments, quite the same as in the case of forests owned by the national government. That the states should own and manage forests to a limited extent will, doubtless, be conceded by most economists, and possibly some would set no limit; but that question need not here be discussed any more than before, for conditions govern here as well, and put a limit beyond which it appears impracticable if not impossible to go; and we must accept such conditions and do the best we can. There are some states in which there is com-

paratively little land, except the farmer's woodlot, which should be given to forestry, because quite all of it is well adapted for agriculture, and should be devoted to that purpose. Then, there are some states whose financial resources are so limited that no considerable planting of forests and maintaining them until maturity need be expected of them. It is unnecessary to name these, but such is the fact, and the truth is patent that no great amount of forest restoration and ownership by the state governments can be depended upon. It is true, however, that there are some states in which this can be profitably undertaken, but there is a limit even there.

Take, for instance, our own state of Pennsylvania, which is among those best conditioned—if not the very best—for the restoration of her forests and conserving them in useful perpetuity when restored. Her virgin forests are nearly all gone, and will be practically so within the next decade; but were there a million acres, she could not purchase even one, for the law limits the price to be paid by the state to $5 per acre, and the value of such forests is now not less than $50, and much of it above $100. Whatever is done must be done along the line of restoration on cut-over and burned-over lands. There are about 8,500,000 acres—practically thirty per cent of the total area—of non-agricultural land within her borders, and, mark you, it is not proposed to devote land to forestry that it suitable for agriculture. While much of this is in large bodies, and some owners have large holdings, still a great proportion of it is in possession of small land owners. There is scarcely a farm that does not contain some of it, and but few of such small tracts can be secured by the state, except by the exercise of its right of eminent domain, even were they desirable, and they certainly would not be if in small and detached pieces. The state already owns almost 1,000,000 acres of cut-over and much of it burned-over land, and it is constantly purchasing more. But there is a limit to what it can as well as what it should do, for fully three-fourths of what it now owns, or will be likely to own, must be reforested by planting trees, as has been found necessary in European experience, in order to restore and maintain forests in perpetuity. It is possible that the state can secure, say, 2,000,000 acres, perhaps more, but she should possess not less than 6,000,000 to meet the demands of her own citizens, and it is not probable that so much can be obtained; and that would be only about forty-one per cent of her total area, while Germany's forests cover twenty-six per cent of the empire's domain, and she imports one-third of the forest products consumed by her people, and her forests are far more productive than ours.

Thus it will be seen that the power of the state governments to restore and conserve the forests within their domain is, as in the case of the general government, quite limited; but, were they not limited by prevailing conditions which cannot be overcome, would it be best for a state to own all or any great portion of the forests within her borders? If our government were of a form in which there would be little or no change of policy consequent upon the triumph of one or the other of political parties, it would present a different case than now confronts us, when a change of party control may come every four years. As long as politics can be kept out of forestry management, all things may go along well; but who can depend upon or guess what may happen in the realm of politics when the forests become valuable? To imagine they would not then become the prey of the grafter and political schemer would be no less absurd and improbable than to believe the millennium would then come. That the state as well as the national government should own and control enough forests to at least prevent a monopoly through a combination of private owners, must not be denied; but that either or both should do all this is impossible, and would be impracticable were it possible, yet the claim advanced by some that private interests should alone develop

natural resources is as objectionable as that the state should do all. Private ownership of a public necessity should be placed under such governmental control as to protect public interests, and it may be best, ere long, for the states to exert their inherent police power to control, to a limited extent, the forests belonging to corporations, municipalities, and private individuals. This has been found necessary in Europe in order to prevent damage to public interests. The state of Maine has already adopted measures looking to such control, and others will be likely to follow. At first glance, this seems a serious encroachment upon private rights, but, as in all like cases, the rights of the public are paramount.

As has already been stated, public opinion has heretofore been almost entirely in favor of governmental action alone, and other agencies have been given little consideration; but if what has been thus far insisted upon are the actual conditions prevailing, then others, though at present thought of little moment, are the important ones: for if the government cannot do the work, other agencies must, or it will not be done. Who, then, must conserve the forests on four-fifths of the timber land of the United States which the President tells us is in the hands of private individuals? and who must plant and restore the forests on the cut-over and burned-over lands unfitted for agriculture? It would seem that the answer is not hard to find, and yet few have given it serious thought.

As has been indicated, the duration of the life of the party undertaking the restoration and conservation of our forests play an important part in the probability of their accomplishment. Those having a legal existence—created by law and "take no note of time"—do not labor under the disadvantages incidental to human life. Such are known as corporations, whose lives are seldom limited by the power which creates them. Among those whose interests would be greatly enhanced by the restoration and conservation of our forests are the railroads, who need timber for ties and many other purposes; the mining corporations, who must have timber for props and a multitude of other uses; the paper manufacturers and lumbermen, whose very existence depends upon a supply of wood, and others, like the tanneries, which largely depend upon forest products to carry on their work. Not only is there an economic reason why all these should engage in the work of restoration and conservation, but there is another feature that is important and must not be forgotten. All these are consuming the forests for what may be termed self-aggrandizement or gain, and the public at large receives only the benefit of being served at a price, and a good round one at that. All such bodies should recognize the duty they owe to the public to restore and keep good the forests which they are exploiting for themselves only, and if they will not recognize that duty, and act upon it, they should be compelled by law to do so. In some European countries, no one is permitted to remove trees from his own land without planting an equal or greater number, so that destruction of the forests will not ensue. If the corporations do not possess forests of their own—but many of them do—laws should be enacted whereby those who cut down forests for them shall restore them by planting. Doubtless, this scheme to compel the replacing of what is cut off will be looked upon as revolutionary and subversive of natural rights, and we may not be prepared for it just now; but be that as it may, it will come to that in due time or the index hand on the dial of progress of this nation will go backward, never to again advance until that or something akin to it shall prevail.

But there is another class of corporations which stand in a different attitude toward the public. In such the public at large is interested in everything connected with them, and is in full control of them—in fact, they belong to the public. These are the municipal corporations — the townships, boroughs, cities, and counties. That they can and should grow and maintain

forests is no new thing in forestry in Europe. It has long been carried on there by cities and communal organizations, and to their financial profit, too; and I beg indulgence to give a few statistics which have been furnished me by a friend who secured them recently from original sources in Germany:

The Grand Duchy of Baden contains 3,726,732 acres of forest, of which 577,465—about sixteen per cent—belongs to communities and corporations. These are allowed to cut annually 261,724,000 board feet, with a value of about $3,600,000, free from the expense of cutting. This shows a yield of 700 board feet per acre; our forests do not exceed 125 feet.

The city of Baden owns 10,576 acres, which yield a net annual income of $6.25 per acre.

The city of Frieburg has 8,085 acres, and receives $5.79 net per acre annually.

The city of Heidelberg possesses 6,860 acres, and it brings in annually $1.91 per acre. This city is acquiring forest land, and is in the period of expense; besides, the city looks more to esthetics than for income from forests.

The city of Villingen has 8,822 acres, and receives annually a net return of $4.84 per acre.

The village of Braunlingen has 1,600 inhabitants and owns 3,504 acres. The yearly annual allowance is 2,500,000 board feet—700 feet per acre—of which an equivalent of 3,500 board feet is given each citizen, and 100,000 board feet is given to schools, churches, town hall, etc. The timber sold brings in an annual income of $21,600, so that the community is not only free from all communal taxes, but is able to establish modern works, as electric plants, water-works, schoolhouses, churches, etc.

The village of Volterdingen has 784 inhabitants and owns 1,124 acres. The annual allowance is 675,000 board feet —600 feet per acre—and the village realizes more than enough to be free from all communal taxes, and to be able to keep the village on a good financial footing.

The village of Aufen has 220 inhabitants and 163 acres of forest. It gives each citizen eight cubic meters of wood (value, $12), and sells $1,440 worth annually. The sanctioned annual yield of this forest is 137,500 board feet—about 800 feet per acre.

We may not yet have reached the point when townships and counties must undertake restoration and care of forests, but the period is fast approaching when some of the counties in this state whose areas are composed largely of cut-over and burned-over forest lands, will be compelled to take such lands for unpaid taxes, and will then receive no income from them whatever, and unless relief shall come in some way not now seen they will, ere long, face bankruptcy and possible extinction as county organizations. But we have some boroughs and cities which may now profitably engage in it in an official capacity —in part as a business transaction, but more for securing and controlling an ample and uncontaminated water supply. This has been made possible in our state by an act passed at the last session of the legislature, largely through the instrumentality of the American Civic Association. By its provisions, municipalities can engage in forestry; but for some unaccountable reason, the act mentioned was robbed of an important feature—the right of eminent domain. However, that can be restored, and undoubtedly will be, by a more enlightened legislature.

Now, to illustrate this view of the possibilities of municipal undertaking in forestry, permit me to cite the case of the great city of Philadelphia. Supposing it had purchased a few years ago from 100,000 to 200,000 acres of land in the counties of Monroe and Pike, in this state, which could have been secured at an expense of not exceeding $2.50 per acre, and probably less. Upon most of this there was a growth of young timber, which, by proper treatment, and adding thereto by planting, could have been made productive enough to soon aid in defraying expenses for care, and by the lapse of forty years, or thereabouts, come into

full production and be as remunerative as the German forests noted. By doing this, it would have come into possession of a large number of lakes with which that elevated region abounds. These could have been converted into storage reservoirs for the numerous clear, pure streams that flow into them, by constructing dams at their outlets. Then, if at the time of purchase, it had conducted that pure water supply by gravity to the distributing system in its borders—the elevation is ample—it would to-day be far better off financially, and thousands of lives would have been saved. The city's dependence now is upon a filtering system both costly in maintenance and uncertain in results, and, withal, insufficient. The returns from the forests would more than defray the expense of maintenance to the city limits.

Such an undertaking would have been no more gigantic and expensive for Philadelphia than is the one New York city is now carrying on to secure a new source of water supply from the Catskill Mountains, where no revenue can come to the city from the forests; nor as much so as that of Los Angeles, where water is being obtained in the Rocky Mountains 300 miles away. Besides, Philadelphia could have furnished water to towns and cities along the route. When our people come to understand and appreciate how important forests are in maintaining an equable flow of springs and streams, they will see that municipalities, by an investment in forests on the watersheds of streams which supply them, can secure a pure and continuous supply, and, beyond that, reap a financial profit from the sale of forest products.

Dismissing national and state governmental action, and that of all kinds of corporations, we come, at last, to the land owner, who must do what the others will not, and who must do it in his individual capacity; and here is a problem so complicated and so large that it can be discussed only in a general way at this time. Conditions here are wholly unlike those in most countries. With us, large land holdings by individuals are frowned upon as inimical to public interests, and entail is not tolerated. Our land owners comprise a vast multitude. They hold in fee, and their domains are mainly small, and nearly all of them should, for their own protection, engage in restoration and conservation of the forests of the country. This is especially true of farmers, who must, of necessity, possess what are known as woodlots, where shall be grown their fuel and such other timber as may be required about the farm. In a short time such work will become imperative, and the farmer should no longer delay entering upon it. Two-thirds of the people in the United States use wood for fuel, and more will as soon as natural gas and coal become less plentiful. Unfortunately, the great importance of this feature is not yet realized, and every effort should be made to awaken the farmer to a conception of it. There is no more reason why the farmer should purchase his fuel than that he should buy his food. He must become an important factor in restoration.

Besides the farmer, there are others who may own large areas, and these can in no other way leave a more beneficent legacy to their children than in a well-forested domain. It will be better than life insurance, and individuals whose large wealth gives them an opportunity to bestow benefits upon posterity can do so in no better form, nor one which will so benefit mankind at large and bless those whose rightful inheritance we are rapidly destroying. From whatever standpoint we may look at it, we will see that individual action must largely control, and that it will not prevail until the people are educated to an appreciation of its importance.

But, after all this insistence that corporations, municipalities, and individuals shall engage in the good work, I am forced to, and sorrowfully do, admit and declare that under the present tax laws of our own and most other states neither corporations, municipalities, nor individuals can now afford to engage in reforestation, for if they do their trees will be practically confiscated

by tax levies. The assessor is bound by law to add the value of the trees to that of the land on which they stand, and that value is, in the main, a prospective and uncertain one. It may never materialize. Disease, winds, fire, or insects may destroy the trees, and at best there can be no return for a long time, while the taxes are continually increasing. Our tax laws were framed when we had a plethora of forests; now we have the reverse, and our laws should be made to conform to present and prospective conditions. The land upon which young trees of valuable species are growing should be taxed as naked land only, and when the crop matures and is harvested, that should be taxed, but not before. Tax the land and product separately. Here is a point for serious consideration, and our lawmakers should take a broad, statesmanlike view of it and remove the incubus that now rests upon the restoration of our forests, for, unless it shall be removed, no improvement of our forest conditions can be expected, except what national and state governments can bring about. President Taft stated in the speech to which I have referred that but three per cent of private timber lands of the United States were administered according to forestry methods. My belief is that not one per cent is, certainly not in Pennsylvania. But that is as much as we should expect under our present system of taxation. Such changes should be made in our tax laws as will encourage all land owners to plant and grow forest trees. We now not only discourage, but practically prohibit them. No half-way work will answer. Hamlet's advice to the players to "reform it altogether" will apply here.

It is confessed that the foregoing exhibit of our condition is neither assuring nor cheerful; but, on the other hand, it is somewhat discouraging. But it must not be forgotten that the whole subject is a new one to our people. Believing our forests inexhaustible, we have not only been diligent in exploiting them, but actually wasteful; and all this must and will cease. It has been this almost universal belief in a permanent supply that has brought about our deplorable condition. But there is good ground for hope. The same conditions prevailed in Germany, France, and Switzerland 200 years ago, and they have succeeded in establishing remunerative forests, and to assert or assume that our people are unable to cope with our present conditions, is to challenge their spirit and intelligence. We can retrieve our misfortune if we but first comprehend the situation.

But how is all this to be accomplished? Briefly stated, it must come through the education of the people; and before closing it will be well to see, for a moment, what instrumentalities are or can be made most potent in that work. Foremost among them all is the public press, next the schools, and after these comes the efforts of associations, societies, and individuals. Too much cannot be said in praise of the willingness and desire of the press to do in the matter of forestry. Rarely does one see anything against the forestry movement in the editorial columns of any influential newspaper of the day. It is only when a partisan spirit is manifested over some proposed legislation which some one deems should be opposed because the opposite party favors it, that anything hostile is to be seen. The public press may be safely set down as friendly to reforestation and conservation. Editors seldom fail to publish any well written communication favoring such measures. It is through the press that the great mass of the people can be reached, and newspapers should be encouraged in their efforts.

Next to the public press, but not so quick to meet conditions and bring about results, are the schools of the land, especially those of the higher grades. Out from their doors go teachers, who, in a broad sense, are public educators and of wide influence, and they mingle with the youth of the land, who must, ere long, take up the work now in its infancy. No more useful effort can be put forth than you are displaying here in Lehigh University. Your efforts are not confined to the classroom, from which they may be

a long time in reaching the public, but they are manifest to all, and you may well rejoice in the beneficence and spirit which give you an opportunity to make your institution one of the agencies through which shall come the restoration and conservation of our forests.

The work that associations and societies may perform is such as the other instrumentalities named are not especially seeking to accomplish, for that of the former is mainly along esthetic lines. The efforts of associations and societies lead to an appreciation of the beauty of the wooded landscape, the opportunities the forests offer for nature study, and their enjoyment as places of amusement, recreation, and health resorts. Though not what commercial forestry mainly seeks, their work is of great importance. Yet some of these, like that of the Pennsylvania Forestry Association, have taken up the practical as well as the sentimental features of forestry and have accomplished much good.

Lastly, is the individual. Here, as well as elsewhere in all societies, communities, and nations, the height which each attains and keeps is practically that of the average individual composing them. Our forestry advance will be just what the average individual endeavors to make it, and you and I must take upon ourselves the work that is to be done as though the burden were ours alone, to the end that this nation's prosperity shall be continued and maintained and new forests grown for those who are to come after us.

NOTES ON THE IDENTIFICATION OF A TROPICAL WOOD

By C. D. MELL, Assistant Dendrologist, Forest Service

SUCOPIRA is an empirical name of a Brazilian wood submitted for identification, with the object of ascertaining its botanical name and of learning something about the distribution and occurrence of the tree and its commercial importance. The sample was collected by Mr. H. von Bayer, in Para, Brazil, and has no other data except that it was cut from the heartwood of a log about two feet in diameter and that the wood is occasionally imported into Europe for the manufacture of walking canes.

The common or trade name of a wood often aids in determining its botanical name, but entirely different woods often have the same common name, and very careful study and comparison are therefore necessary before one can be sure that an identification is correct. After a long search in botanical literature, it was found that Doctor von Martius[1] described in his *Materia Medica* a Brazilian tree called Sebipira, Sicopira, Sebupira, Sebepira, Sepipira, Sucopira, or Sicupira, botanically known as *Bowdichia virgiloides* H. B. K. It was not safe, however, to conclude without further technical investigation that the tree from which this wood was taken is a species of *Bowdichia*.

Pecholtz[2] made a study of Sicopira gum, and in this connection described the wood of the Sicopira tree as being hard, heavy, very resinous, and highly esteemed in Brazil for all kinds of building purposes. He also stated that the stems yield a fluid known by the

[1] *Systema Materiæ Medicæ Vegetabilis Braziliensis, Composit Car. Frid. Phil. De Martius.* Lipsiæ, 1843.

[2] *Archiv der Pharmacie*, Januar, 1862.

Indians along the Amazon River as *Cereja de Sicopira*, which means Sicopira beer. The beer is said to foam very copiously, and to be exceedingly bitter. The wood to be identified is slightly bitter, which is a character in favor of *Bowdichia*. Kalsch[3] determined the specific gravity of Sebupira wood to be 1.348. The sample to be identified has a specific gravity of 1.0, which is considerably lighter than the wood Kalsch investigated. The difference in weight, however, does not prove that these are different woods.

The transverse section shows structures that appear, on first glance, to be successive rings of growth having parts corresponding to early and late wood. There is, however, a very marked difference between these two structures. The part corresponding to late wood is very dense and has a wavy outline. A tangential section may therefore show both the more dense and the less dense portions. Since the latter is composed of wood-parenchyma fibers, one might infer that the wood is light in weight and rather soft; yet, on account of the unusually thick walls of wood parenchyma, it is decidedly hard and very brittle. The width of these tangential bands varies from one-half millimeter to one and one-half millimeters, with an average of about one millimeter. Careful observations show that these contrasting structures frequently meet, which proves that they are not concentric zones (annual rings). These bands have such different characters that the radial section shows alternating dark brown and lighter streaks which consist, respectively, of the denser and softer layers of tissue. This structure is so well definied in the radial section that it often resembles the wood of palms.

So far, the anatomical study presents a great many difficulties. The wood is hard and exceedingly brittle, making it almost impossible to obtain good microscopic sections. The radial surface shows that the wood is composed of two kinds of tissue, which, as stated, alternate with each other. The darker, close-grained layers are composed of very strongly thickened, elongated wood fibers without pits, while the lighter and softer ones consist of vessels and thick-walled wood-parenchyma fibers with pits. The wood fibers are very closely cemented together. The wood-parenchyma fibers are compactly arranged, while the vessels are found scattered singly or sometimes in groups of two to seven in radial direction within the bands of wood parenchyma. The vessels consist of numerous segments placed end to end, directly communicating with one another through extended pit canals, but in the older wood these canals are closed up and communication ceases. The vessels which can be seen with the unaided eye in a smooth cross-section are about sixteen one-hundredths of a millimeter in diameter. The groups of vessels within the bands of wood parenchyma become greatly extended, thus rendering the tangential structures very irregular.

The pith rays in a transverse section are scarcely visible to the unaided eye. They are more strongly thickened and contain more pits than the wood-parenchyma elements. The rays are from two or three rows of cells wide, having one row of rather wide marginal cells above and below. In transverse sections they often seem to be only a single cell wide. Within the tangential bands of wood fibers the pith rays cells have a considerably smaller horizontal diameter than within the bands of wood parenchyma, which can be seen to best advantage in transverse sections.

For a complete study of this wood, it is necessary to have, in addition to the transverse and radial sections, two tangential sections; one through the dense layer of wood fibers and the other through that of wood parenchyma. One is first struck by the presence of two kinds of pits: the bordered pits in the vessel walls, and the simple pits in the walls of the pith-ray cells and wood-parenchyma fibers. In longitudinal sections, the vessel walls show long, slit-like pit openings which are almost as

[3] *Botanische Zeitung*, Januar, 1863.

wide horizontally as the borders of the pits themselves. The pits are uniformly arranged over the entire surface of the vessels. They are close together, uniform in size, and hexagonal in outline. The partitions between the pit cavities are thin and delicate, resembling the walls of honeycombs. The regularity in the number and occurrence of pits in vessel walls is rarely disturbed, but there are places where the pits are not fully developed; here the pit canals are present and the cavities are wanting. The lenticular pit cavities and the slit-like pit canals can best be seen in transverse sections, especially if the section be treated with a solution of iodine and sulphuric acid or chloriodide of zinc. The pit canals in the cross-walls of abutting vessel segments cannot always be clearly distinguished in longitudinal sections. The canals themselves are often mistaken for partition walls between the adjoining pits. This error may be avoided if one remembers that pit canals always begin where the pit cavities end. The lenticular pit cavities are seen best in longitudinal sections. Where the vessels are adjacent to wood parenchyma, the pits within the walls of the latter are the same as those in pith ray cells, and those within the vessel walls are bordered. The pits in the cells of wood-parenchyma fibers and pith rays are simple, and in vessels they are bordered, resembling those in tracheids of conifers. The pit cavities, however, are not shown so plainly as they generally are in coniferous woods.

The cross walls of vessel segments are now always in close union. The portion between the abutting segments is composed of a soluble substance. By treating thin sections with potassium chlorate and nitric acid, this substance is dissolved, leaving the cross walls distinctly visible. The vessels are developed directly from wood parenchyma, as may be determined from the intermediate forms which are very abundant, especially where more than three vessels are located side by side. Two of these vessels are, then, as a rule, of the usual diameter, and the others are smaller.

The structural characters of this wood are like those of woods related to *Robinia, Gleditschia, Hæmatoxylon campechianum* L., *Cæsalpinia echinata* Lam., etc., which are known as leguminous woods. As was said, the occurrence of vessels as vessel cells and not as vessel tubes is charactertistic of the woods of this group.

In conclusion, the question to be solved is whether the regular alternating bands of wood fibers and wood parenchyma correspond to annual increment layers. The gross characters showing that they do not coincide with so-called annual rings have already been given above. An anatomical investigation reveals the fact that there are no elements present, either in the parenchyma or prosenchyma layer, which resemble intermediate forms invariably found in that part of the concentric zone where it changes gradually from early to late wood. Nor is there a known wood in which the early growth is composed of tissue wholly different from that formed later.

The facts determined thus far show beyond doubt that it is a leguminous wood. There is no analytical key based on structural characters by means of which it can be traced down to its proper genus. Both the gross and minute characters have been carefully compared with those of authentic samples of *Bowdichia virgiloides*, with which they agree in every particular. The generally accepted trade name for this wood is Sebipira, which is also a generic name given to it by Doctor von Martius in 1828. It had been previously described, however, by Humboldt, Bonpland, and Kunth as *Bowdichia virgiloides*.

EDITORIAL

Samuel Bowdlear Green

THE cause of forestry, particularly in the field of forest education, suffered a severe loss in the recent death of Prof. Samuel Bowdlear Green, dean of the school of forestry at the University of Minnesota. When Professor Green took up forestry as his life work, more than a score of years ago, he was a pioneer. The outlook was discouraging in those days. The very word forestry was novel, and its meaning ill understood, while, often enough, to ignorance were added indifference and active opposition. To achieve results, to be a successful leader, in those conditions, required both the power to fight and the discretion to conciliate; it called for a large and many-sided man, knowing thoroughly what was wanted, yet moderate and adroit enough to seize and develop whatever was offered. It was because he possessed these qualities that Professor Green accomplished so much. By persistent and judicious effort, sustained by unflagging pluck and confidence, he built up the course of forest study at the University of Minnesota, carried forestry into practice at Itasca Park, exercised a controlling influence in the development of a state forest policy, won the liking and cooperation of lumbermen, and had the satisfaction, a short time before his death, of seeing the results of his work take permanent shape in a separate school of forestry at the university, and of being its first dean.

The high regard felt for Professor Green among lumbermen is shown in an editorial in *The American Lumberman* for July 23, from which the following is taken:

> In Samuel B. Green forestry had a noble champion. He was a sane, conservative, but none the less persistent worker in the cause which in late years had become his life work. Just as the science of forestry itself is the outgrowth and development of agriculture, so Professor Green, originally a scientific agriculturist, ultimately became a scientific forester. He long ago realized the importance of forestry as a science and he realized also that to succeed forestry must be practical and useful, and he bent his efforts as professor of horticulture in the University of Minnesota to the building up and developing of the forestry work of the university.
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> Professor Green was essentially of a judicial temperament. He saw both sides of every question. He possessed the one faculty that is indispensable to leadership in any movement in which interests are varied and conflicting. He was not a radical partisan or advocate of any policy, party, or interest. He understood, recognized, and respected the rights and opinions of all. His advocacy was in the direction of education. He knew that the forests must be used to be conserved, and it was his chief end and aim to teach the people to know that true conservation of the forests is synonymous with their proper use. Thus in his policy the theoretical and practical were so combined and harmonized as not to arouse the antagonism or opposition of any interest. He had the fullest confidence and respect of lumbermen and all who knew him.

Professor Green was born at Chelsea, in 1859, the son of Thomas and Anna (Marden) Green. He was graduated from the Massachusetts Agricultural College in 1879, having specialized in forestry and horticulture. He continued his studies in a number of foreign countries. From 1888 to 1898 he was a teacher in these subjects, and in 1898 was appointed to a professorship at the University of Minnesota. He had been an associate editor of *Farm and Fireside* since 1888. Besides his deanship at the school of forestry at St. Paul, he was president of the Minnesota Horticultural Society and of the board of administration, Farmers' Institutes of Minnesota. He was author of a number of books, including "Amateur Fruit Growing," "Vegetable Gardening," "Forestry in Minnesota," and "Principles of American Forestry."

Statesmanship

THE world likes a clean fighter, who makes his fight and if defeated yields without complaint. It also likes the man who fights fair. Theodore E. Burton, junior senator from Ohio, is one of the able men, intellectually, of the Congress of the United States, but he does not fight fair nor yield gracefully to defeat. His filibuster in the Senate, by which he postponed for another year the passage of the bill that would have made possible the salvage of some of our eastern mountain watersheds, remains unexplained on any rational grounds. This is not a job that would justify one or two legislators in blocking its passage, in the face of a majority. It is a popular measure, with no graft or selfish interest behind it. All that Mr. Burton accomplished was to exhibit a personal animus and hold for a little while the center of the senatorial stage, a cheap notoriety that a man of his mental caliber should be above. If we are not mistaken, this petty part will be remembered much longer than some of his more creditable acts of statesmanship. Two comments from able and conservative journals will indicate the estimate that is placed upon the Ohio senator's action. The *Providence Journal* said:

> The fact that Senator Burton of Ohio is, generally speaking, one of the most useful and intelligent members of Congress makes his pernicious activity against the bill for the preservation of the Appalachian and White Mountain forests the more discreditable. Without judging motives, it is difficult to absolve him from the charge of having sinned against the light. The importance of the measure is admitted by every real friend of conservation. In the White Mountains, especially, the work of devastation is going on apace. True, the state of New Hampshire is greatly to blame for not following the example of Massachusetts and Vermont and doing something of its own accord to protect its most valuable natural asset. But this fact will not relieve Congress of the odium of failing to pass the Weeks bill. It is distressing that, after the efforts of the Speaker of the House to prevent this legislation have been defeated, a member of the Senate should have the power by a mere exhibition of volubility to disappoint expectation once more.

The second editorial is not from the hotbed of Appalachian forest agitation, but from Senator Burton's own state. The *Columbus Dispatch*, voicing a sentiment to which the senator may be more sensitive than to that of New England, said:

> For five hours, Friday, in the United States Senate, Mr. Burton, talking on a multitude of irrelevant subjects, filibustered to kill the White Mountain and Southern Appalachian forest reserve bill. He succeeded by resorting to legislative sharp practice and misuse of senatorial privilege in preventing a vote on one of the most vital and important measures in the general scheme for the conservation of the natural resources of the country. Secretary Ballinger himself and all the interests in opposition to conservation could not have been more devoted advocates. The junior senator from Ohio was not content to register his individual antagonism, to state his case and make his appeal for reaction. He chose, rather, to stop the machinery of legislation altogether, fearing the majority of the Senate was in favor of the bill and would pass it if accorded an opportunity.
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> What has led the senator to this championship of the cause of those who despoil the forests and the streams for their own gain? He says he is fighting conservation because of the cost of it. But what of the cost of the failure to conserve the forests? And when did this nation become so poor that it had not money for the necessaries of its own existence and prosperity? Mr. Burton is posing as a watchdog of the treasury, but in that role he is a sham. He is serving not the people, but the special interests which he served so conspicuously when he voted almost continuously with Aldrich on the tariff.
>
> When Mr. Burton was elected to the Senate from Ohio he was believed to be a zealous champion of the interests of the people. He was supposed to represent a new order of things. As a senator of the United States he shattered these beliefs and suppositions of public opinion in Ohio almost at the beginning. His record since his elevation to that high office has been more than a disappointment. It has been a calamity.

Mr. Burton was ably assisted by Senator Newlands of Nevada, a conservationist who insists in conserving in his own way or not at all. Mr. Newlands declared his belief in the object of the pending bill, and then talked and voted to defeat it. If Mr. Newlands wishes to win support for his methods and ideas, the way to do it is not to use the club of a filibuster upon the sorely tried patience of the eastern friends of forestry.

The height of statesmanship in the House was reached by the Hon. Edgar

D. Crumpacker of Indiana, in his speech against the bill. He suggested the employment of two old-fashioned windmills with pumps at the head of the Connecticut River as a means of supplying more water in the river and doing "more for navigation than will be done under this scheme in a quarter of a century." The Indiana statesman also said:

> Fifty years ago and more the great prairie states in the Mississippi Valley were covered with swamps and sloughs that were saturated with water the year round. They contributed much toward the rainfall in the valley during the hot days of July and the dog-day season. They gave to the atmosphere vapor that went up into the clouds and made rain. Those swamps have all been drained. They are dry. They are farms and gardens now. The government might as well enter upon an undertaking for the common good to reestablish those swamps and sloughs on those fertile lands in the prairie states, with a view to promoting rainfall in the Mississippi Valley.

The *New York Sun* was so impressed with this powerful argument that it remarked, after reviewing the speech at some length: "There were other foolish speeches made in opposition to the Appalachian forest reserve bill, but the palm must be awarded to the Hon. Edgar D. Crumpacker."

If this bill needed more support than the powerful scientific, economic, and legal arguments that have been massed in its behalf during the ten years of discussion, this would be found in the fact that the best its opponents can do against it is typified by the filibuster in the Senate and such arguments as Mr. Crumpacker's in the House.

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The Rocks Ahead

ON OTHER pages of this magazine the record in the first session of the present Congress of the Weeks bill for the acquisition of national forests is given at some length. The failure to pass the bill at this session is a bitter disappointment, and the present situation has an element of danger in it which calls for a word of warning.

The fight in the House was successful because, although the Speaker and the House leaders on both sides have steadily opposed the bill, it was in the hands of some of the shrewdest and most resourceful parliamentary fighters in that body, and they put the measure through by sheer hard work.

In the Senate the opposition was far less—so much so, indeed, that we were constantly assured of the passage of the bill by those who had it in charge. Why, then, did it fail in a body where it has always had a comfortable majority in its favor? Simply because it was brought up too late in the session. By holding the bill back to await the action of the House, when an elementary knowledge of the situation would have made it clear that the House would not get at this bill until near the close of the session, an opportunity was fitted to the hand of those senators who, to show their own power or accomplish a personal end, were prepared to filibuster against it.

The President was partly responsible for this delay. Naturally anxious for the success of his especial measures, he did not wish to have anything intervene to block them, and while he desired and recommended its passage, he asked that it be not brought forward until the so-called "Administration bills" were disposed of. The bill might have been reported at any time from the Senate committee on forest reservations, which was unanimously in favor of it, and pushed in the Senate without reference to the House. Then it would have been safe. The game of the filibuster is time, and it is impossible to hold either house in session in the heated Washington weather when a time of adjournment has been fixed upon. The senators did the best they could under the circumstances, but the circumstances should not have arisen.

As it now stands, the danger that must be guarded against is the attachment of amendments, making necessary a conference. The bill has passed the House; it will be voted on in the Senate on the 15th of February next; but so will any proposed amendments. It is

possible for the eminent statesmen from Ohio and Nevada to attach amendments to the bill that will throw it into conference if they are accepted by the Senate, and then, with only two weeks remaining of the session, the conference and the succeeding discussion could be prolonged until it would once again be too late to enact the bill.

We ask the senators who support this bill to guard against such a disaster, for it would be nothing less. We ask President Taft to throw the weight of his influence to secure the prompt passage of this bill, most vital, most immediately necessary of all conservation measures, and the only one for which the east has asked.

The delay this year means a heavy loss, especially in the White Mountains. Any further delay, in view of the well-known facts, would be a crime.

There is a strong feeling among many people who know the legislative ways of Washington that there is no intention of passing this bill; that enough is to be done at each session to pacify troublesome constituencies, and that the measure, having been used as a football between the houses, will be allowed to quietly "fall through the slats" at each session. Expressions of this opinion have come to us from so many sources that we believe it may be well for senators and representatives to know that it exists. The country is impatient of anything that looks like unfair play, and the football game has been played, with this bill for the leather, as often as it is safe to play it. The next game must be a fair one in which votes count.

* * *

Prize Essays in Forestry

FOUR pupils in the high schools and township schools of Indiana recently carried off as many prizes for essays on the subject of "Forestry in Indiana." The winners were Myrl Ellen Simmons, of Union City; Olive O. Shideler, of Attica; Garfield V. Cox, of Fairmount, and David Erwin, of Fort Wayne. Collectively, the essays give a fairly adequate acount of the present situation in the state, while individually they do credit to the writers and their instructors as well written and thoughtful bits of exposition and argument. Most of the salient points are well brought out, and enforced with good sense and in good English. The extent to which the Indiana forests have been exploited in the past, the chief present problem—that of planting, and the value of the farm woodlot as part of the well-balanced use of agricultural land are accurately and convincingly indicated.

There is no more productive soil in which to sow the seed of sound thinking upon forest economics than that offered in the public schools of the country. For a lifetime the pioneers of forestry have been expending immense stores of energy in converting adult minds, educated in days when indifference to the forest, an over-sensitive sense of private rights, and the traditions of half a dozen generations were stubborn counter-tendencies. In overcoming these tendencies there has been great waste of effort; the minds of grown men and women responded but slowly and incompletely. Meantime, the forces that make for forest waste remained in full swing; the speculative view of forest investments, encouraged by experience of quick and rewarding profits, even augmented the speed and magnified the scale of the exploiting process. It became more and more evident that a change for the better could be brought about only by showing the financial advantages of permanent forest management, on the one hand, and by rousing and guiding civic responsibility, on the other. The required means were a sound education in the principles of forestry and a moral enlightenment as to the responsibility of the state for the general welfare; in other words, the development of well considered forest policies, private and public. The foundations for these policies are to be laid most effectively in the schools, where forestry has become at once a cultural study and a department of civics. The Indiana school essays are, therefore, not only thoroughly worth

while in themselves; they have a wider significance as part of the general schooling by which the rising generation will be prepared to handle more efficiently the forest problems of their day.

The Woodlot

FOR the eastern United States, the woodlot is and will long continue to be an important factor in the forestry problem. Generally speaking, the eastern farm has its woodlot, large or small, a very valuable part of the property, and a part that is too little appreciated by its owner.

It follows that the farmers have a direct interest in forestry second only to that of the lumbermen. That the woodlot may be maintained in such condition as to yield a continuous supply of firewood, fence posts, poles, and lumber for home use, with perhaps a surplus for sale, is the object for which its owner should strive, and to this end he should know something of the main principles of forestry and of the special application of those principles to the conditions on his own farm.

As an illustration of what this may mean to him in money, consider an incident that actually happened, involving two New England farmers. Their woodlots were of the same character, the principal growth being pine. One of them had his lot, which he proposed to cut, examined by a forester, who made an estimate of the stumpage value. The stumpage was then sold to a lumberman at $7 a thousand.

The same lumberman had been trying to buy the stumpage on the second farmer's lot, and had last offered $800 for it. Now, as he was going to work the neighbor's lot, he increased his offer to $1,200, which was accepted, the owner congratulating himself on having pushed the price up $400. But note the result. From this second lot the lumberman cut 1,000,000 board feet. Had this brought the price that the first lot brought, the owner would have received $7,000, instead of $1,200. He gave the lumberman $5,800 because of his ignorance of the value of his own property.

This is only one case among thousands, but the opportunity afforded for comparison makes it especially valuable for illustration. How many of our farmers know what a bank account there is in the woodlot, and how to make it yield the most interest?

On many of our eastern farms there is land that is more available for tree growing than for modern agriculture, that is neglected and doing nothing—too run out for pasture, too rough for cultivation. A plantation of forest trees on this land would not yield an immediate return, but it would cost little and would enhance the value of the land each year, besides providing for the needs of the future.

The scientific farmer should know something of forestry as well as dairying and horticulture, if he would have his farming well balanced and profitable in all its departments.

NATIONAL FOREST WORK

Boundary Changes in National Forests

Further revisions of the boundaries of national forests were made during July. The President has signed a proclamation eliminating approximately 54,590 acres in Idaho and 5,480 acres in Wyoming from the Targhee National Forest, and dividing the remaining area into two forests. The eliminations are the results of a careful examination made by the Secretary of Agriculture last summer, which showed that the lands now excluded are mainly non-timbered areas of more or less value for grazing or agriculture and not needed for forest or for watershed protection.

By the division, the northern section of the forest remains as the Targhee and the southern section becomes the Palisade.

By other Presidential proclamations, an area of approximately 239,360 acres has been transferred from the Wenatchee to the Chelan National Forest, Washington. The land thus transferred from the eastern border of the one to the western border of the other is a timbered mountain area forming the Entiat watershed. It is believed that the territory can be more satisfactorily administered as a part of the Chelan Forest from the headquarters at Chelan than as a part of the Wenatchee from the headquarters at Leavenworth.

For better administration, the new Chelan Forest was divided on July 1 into two parts.

On July 1 the Black Hills National Forest, the largest national forest in the country, was divided into two units, the new forest consisting of the southern portions of the previous one.

The plan has been under consideration for some time. Besides being the largest forest in the United States, the Black Hills National Forest is ranked as the most important in the matter of business transactions and contains 1,190,040 acres.

The forest had become unwieldy, and a new forest was established by drawing a line east and west through the existing forest, just south of Redfern in Pennington county, making the two forests almost equal in size.

Restocking National Forests

More than ten tons of tree seeds will be used this year on the national forests, in extensive experiments in broadcast sowing and machine planting designed to supplement the more expensive methods of planting nursery stock. Most of this seed has already been planted. The rest will be used later in the season when the right conditions are present. Altogether, the ten tons of seed are equivalent to perhaps 300,000,000 single seeds.

Most of the seed will be sown, either broadcast or in seed spots, or planted with a corn planter, directly in the place where the trees are to stand. Broadcasting has already been found to give good results in some regions. It was first tried in the Black Hills of South Dakota, with an encouraging outcome.

Planting Work

Forest planting work on the Fishlake, Manti, and Nebo national forests was very successful during the past year. In the region where these forests are located, approximately 4,000,000 acres of land need to be reforested. Sooner or later, this big task must be accomplished. During the past few years a great deal of knowledge of conditions was obtained and much has been learned about how best to meet them. Already a good beginning has been made. Three large tree nurseries have been established, one on the Wasatch Forest near Salt Lake City, one on the Uinta, and one near Pocatello. Ten million plants are growing in these nurseries this summer. A great deal of planting will be done in the fall.

Damage from Porcupines

Porcupines have been giving so much trouble by girdling seedlings in certain national forests that the work of exterminating them has been undertaken by the Forest Service in cooperation with the Biological Survey. The porcupine feeds to a large extent in winter upon the inner bark of young pines. Methods of poisoning are being investigated in both the Colorado and California national forests, where the most trouble is experienced. Dr. N. Dearborn and Prof. D. E. Lantz, of the Survey, have recently visited the Routt and the Pike forests, in Colorado.

STATE WORK

The New Lookout Station in New Hampshire

A map has been prepared showing the location of the present forest fire control stations in New Hampshire and those which the state forester desires to add to the system.

The thirteen lookout stations which are in operation, in course of instruction, or for which the money has been subscribed, are located in Pittsburg, Dixille, Millsfield, on the peaks of Mounts Madison and Washington, in Bethlehem, Bartlett, Liermore, Benton, and Croydon. These are so placed as to command a wide view and to practically protect the northern section of the state from forest-fire loss, although the chain will be more complete if the state forester can secure the funds necessary to build stations in Sandwich, on Mooselake, in Albany, and in Bean's Purchase.

Returns from forest fires for the first six months of the year show heavy losses in the lower counties by reason of the unusually early spring and the long-continued dry weather.

Fire Protection in New York

Following the enactment of new fire protective legislation in 1909, a year of experience with the law demonstrated the need of establishing a fourth fire district in the Adirondacks. Commissioner James S. Whipple recommended this step in his report for the year 1909, and an act of the legislature which amends the forest, fish and game law provides for the additional district and another fire superintendent to take charge of it.

PENNSYLVANIA

Corporation Owners Taking up Forestry

Corporations having large holdings of land have recently sought the advice and assistance of the Pennsylvania department of forestry in taking care of their timber lands. This branch of the work has become so well established that it takes up practically the entire time of George H. Wirt, who was formerly in charge of the state forestry school at Mont Alto, but who is now in the office of the department.

Among the requests for assistance of this character which have recently been received are one from one of the large anthracite coal companies of the state and another of a similar character from one of the large bituminous companies. In each case, the coal corporations own outright the land in which they mine—surface as well as coal deposits—and the officials desire to do the best they can with the timber.

Some of the tracts brought to the attention of the Commissioner of Forestry have good stands of timber on them, which it is the desire of the owners to preserve and to better; other lands are bare because of the devastating fires, and these it is desired to restock with timber. Whatever the circumstances, a comprehensive scheme of treatment is outlined after an inspection of the premises and all possible advice and assistance given.

Several lumbermen in the western part of the state are planning to protect and manage their holdings according to the instructions of the department of forestry. One of them told the commissioner that he had cut considerable timber and now wants to redeem himself by planting some trees; he will set out about forty acres next spring. A number of other lumbermen are contemplating similar planting.

The State Forest Academy

E. A. Ziegler has become director of the State Forest Academy, at Mont Alto, succeeding George H. Wirt, who has become the chief forester for the state forestry commission. The state reserves now cover practically 1,000,000 acres, and are administered by thirty foresters trained in the State Forest Academy. This number is being increased by about ten men annually.

Mr. Ziegler is a college graduate and has also been with the United States Forest Service for a number of years, serving in the office and the field as well. During that time his work was devoted mainly to forest mensuration. The assistant director, I. T. Worthley, is also a trained forester, a graduate of the New York College of Forestry at Cornell, and a member of the only class that ever graduated at that institution. He has also taken forestry work at Yale and Harvard. These two men have charge of the forestry branches. In addition to these, there are two more instructors in the allied subjects.

EDUCATION

The Educational Question

The question of the proper curriculum for a forest school was freely discussed at the forestry convention, held in Washington last January. Many points of view were presented, and there were many papers pro and con each way. Some of these points were very well taken, and will undoubtedly tend toward a uniform standard in all the schools in the country. There are some, however, which seem to be receiving more attention than they rightfully deserve.

One point, especially, which was threshed over and over was the question of whether it is the duty of the school to give instruction in "practical" work. The opinions on the subject seem to be widely divergent, but will not a careful analysis of these opinions show that it is mostly a seeming difference, and that the real difference lies in the definition of "practical work?" Some take the stand that all work taught outside the classroom is "practical;" others apply the term only to such manual labor as bears but indirectly on the science of forestry. Some are in favor of "practical" work, others think that it has no place in the school at all. In any case, they all seem to agree—such is the only inference—that all classroom work is impractical. Of course, that is not at all what is meant, but it is the impression given. All work is practical, whether given in the classroom or field, if it teaches anything useful; if it does not teach anything useful, it should be cut out in no matter what class it may happen to belong. On this same principle, all useful (practical) work which can be learned more readily in the school than anywhere else should be included in the regular course.

It has now, for many years, been the tendency in the development of modern educational work to do more and more of the teaching in scientific lines in the laboratory. Ocular demonstration will teach the average student more in a week than he can learn in the class-room in a month. This has been generally accepted in most lines of work; why should we deny its application in the teaching of forestry? The nursery and the forest form the laboratory for the work in technical forestry. One afternoon's work in the seed bed will teach more of the handling of seedlings than a month of lectures, and no amount of instruction can take the place of a little actual practice in thinning. The one supplements the other, and only the two together can make an efficient worker, with the ability and self-reliance to carry on independent work. That much of the practical is absolutely necessary, probably even the strongest supporters of the strictly theoretical would not deny.

The work which meets the most objection is that in the lumber camp, sawmill, and national forest. It is held that this is not the proper work for a school and can be learned better elsewhere. This is partly true in that there is not the time to take it up in the short period allotted to school work. It is, however, an important part of the forester's training. The properly trained forester is supposed to know thoroughly all the work connected with the formation, care, harvesting, and marketing of the timber crop. He should know enough about them to supervise and direct all these operations.

Any captain of industry, whatever the particular industry may be, will tell you that a man cannot be a successful director, no matter how complete his theoretical training may have been, unless he has worked through all the stages of the business and learned all the details. This is no less true in forestry than in anything else. The more of such work a man has had, the better prepared he is to take up his life work, to perform the duties of a forester. This is true in Germany, where the theoretical side has been most highly developed, and it is even more true in the United States, where the forester is more closely mixed up with these lines of work. It is a well-known fact that the school graduate must serve a year or two of apprenticeship before he is capable of doing his work. This is true in any profession, and cannot very well be entirely remedied, but it can be helped some. The more of this apprenticeship work that can be done before graduation, the less there is to do afterward, and the better prepared the graduate is. The practice work should never be allowed to interfere with the theoretical and scientific studies—for these cannot be obtained anywhere else—but all of it that can be sandwiched into the spare hours is so much gained.

Vacations passed in this way are invaluable. The insight gained on the nature of the work and the knowledge of woods conditions enable the student to discriminate in his subsequent studies and see the application of theories he is learning. Many things which he would have otherwise been obliged to take on faith, and only half understand, are perfectly clear when fitted into their proper place in the field of his experience. The same amount of this work, after graduation, would not be nearly so beneficial. Many of the theories which the student should then apply he will have forgotten because he only half understood them when he studied them.

If these premises are correct, it follows that all such work is essential to a proper school training. Let all the work of the school be practical, and let there be as much practical work as possible.—*The Minnesota Forester.*

CURRENT LITERATURE

MONTHLY LIST FOR JULY, 1910

(Books and periodicals indexed in the Library of the United States Forest Service)

Forestry as a whole

Bibliographics

Tharandt—K. Sächsische forstakademie. Katalog der bibliothek; nachtrag 1, 1900 bis 1904. 88 p. Tharandt, J. & R. Stettner, 1905.

Proceedings of associations

Pennsylvania—Forestry, department of. Proceedings of the first convention of Pennsylvania foresters, held at Harrisburg, Pa., March 4-6, 1908. 49 p. Harrisburg, 1910.

Forest description

Kellogg, R. S. The forests of Alaska. 24 p., plates, maps. Washington, D. C., 1910. (U. S.—Forest service. Bulletin 81.)

Forest botany

Trees, classification and description

Cook, O. F. Relationships of the ivory palms. 9 p., illus. Washington, D. C., 1910. (Smithsonian institution—U. S. national museum. Contributions from U. S. national herbarium, vol. 13, pt. 5.)

Woods, classification and structure

Mell, C. D. The histology of resin canals in white fir. 6 p., illus. Washington, D. C., American forestry association, 1910.

Troup, R. S. Burma padauk, Pterocarpus macrocarpus. 41 p., plate, map. Calcutta, 1909. (India—Forest department. Forest pamphlet no. 14.)

Silvics

Forest influences

Girod-Genet, Lucien. Les inondations; a la recherche des causes. 29 p. Nice, G. Mathieu, 1910.

Studies of species

Schwarz, Frank. Physiologische untersuchungen über dickenwachstum und holzqualität von Pinus silvestris. 371 p., illus., plates. Berlin, P. Parey, 1899.

Sterling, E. A. Chestnut culture in the northeastern United States. 28 p., illus., plates. Albany, N. Y., Forest, fish and game commission, 1902.

Silviculture

Fron, Albert. Sylviculture. 2d edition. 496 p., illus. Paris, J. B. Baillière et fils, 1909.

Forest protection

Insects

Felt, E. P. Insects affecting forest trees. 56 p., illus., plates. Albany, N. Y., Forest, fish and game commission, 1902

Forest management

Hole, R. S. Notes on best season for coppice fellings of teak, Tectona grandis. 29 p. Calcutta, Supt. of government printing, 1910. (India—Forest department. Forest pamphlet no. 16.)

Forest administration

New York—Forest, fish and game commission. Fifteenth annual report, 1909. 426 p., plates. Albany, N. Y., 1910.

New York—Forest, fish and game commission. Annual report of the Department of forestry. 34 p., plates. Albany, N. Y., 1910.

Forest engineering

Holmes, J. S. Relation of good roads to economic forestry. 6 p. Chapel Hill, N. C., Southern Appalachian good roads association, 1910.

Forest utilization

Fisher, W. F. Forest utilization. 2d edition. 840 p., illus., plates. London, Bradbury, Agnew & Co., 1908. (Schlich's Manual of forestry, vol. 5.)

Wood-using industries

Troup, R. S. The prospects of the match industry in the Indian empire, with particulars of the proposed match-factory sites and woods suitable for match manufacture. 172 p. Calcutta, Supt. of government printing, 1910. (Indian forest memoirs, economic products series, v. 2, pt. 1.)

Auxiliary subjects

Botany

Fink, Bruce. The lichens of Minnesota. 269 p., illus., plates. Wash., D. C., 1910. (Smithsonian institution—U. S. national museum. Contributions from U. S. national herbarium, vol. 14, pt. 1.)

Scribner, F. Lamson-, and Merrill, Elmer D. The grasses of Alaska. 46 p., plates. Wash., D. C., 1910. (Smithsonian institution—U. S. national museum. Contributions from U. S. national herbarium, vol. 13, pt. 3.)

Nature study

Coulter, John M., and others. Practical nature study and elementary agriculture; a manual for the use of teachers and normal students. 354 p. N. Y., D. Appleton & Co., 1909.

Flint, Lillian C. Small gardens for small gardeners, or, What little hands can do with plants. 118 p., illus. Chicago, A. Flanagan Co., 1910.

Parks and reservations

Strough, Arthur B. The St. Lawrence reservation, or International park. 16 p., illus., plates. Albany, N. Y., Forest, fish and game commission, 1902.

Periodical Articles

General

American homes, May, 1910—Trees and shrubs to avoid in general planting, by I. E. Johnson, p. 212.

American naturalist, May, 1910—Anatomical characters in the evolution of Pinus, by I. W. Bailey, p. 284-93.

Country Life in America, May, 1910—How to know our tree neighbors, by J. E. Rogers, p. 66.

Farm and ranch, July 2, 1910—The forests of Alaska, by J. A. Arnold, p. 11.

Gardeners' chronicle, May 7, 1910—Pterocarpa, p. 291.

Gulf states farmer, June, 1910—Eucalyptus in Louisiana, p. 4-5.

Journal of the Royal society of arts, April 1, 1910—Indian state forestry, by S. Eardley-Wilmot, p. 493-508.

Penn state farmer, May, 1910—The development of forestry education in the United States, by J. A. Ferguson, p. 73-7; Extracts from a letter from a student in forestry in the University of Munich, by H. P. Baker, p. 77-82; The importance of the farm woodlot, p. 82-85.

Report of the West Virginia state board of agriculture, 1910—West Virginia's future timber supply, by A. W. Nolan, p. 98-100.

School science and mathematics, May, 1910—The catalpa tree, by J. P. Brown, p. 428-30.

Science progress of the twentieth century, Jan., 1910—The productivity of woodland soil, by J. Nisbet, p. 504-10.

Tropical life, March, 1910—The rubber industry of Mexico, by P. Olsson-Seffer, p. 50-2.

Trade journals and consular reports

American lumberman, June 25, 1910—Cooperation in settlement of cut-over lands in southern states, by E. Hines, p. 34-5.

Engineering magazine, May, 1910—Reforestation of reservoir lands, by E. R. B. Allardice, p. 267-9.

Engineering news, May 12, 1910—The new timber-treating plant of the Eppinger and Russell Co. at Jacksonville, Fla., by G. B. Shipley, p. 545-7.

Engineering news, June 23, 1910—Records of deforestation and gage heights for the St. Croix and Chippewa rivers, by C. W. Durham, p. 732.

Hardwood record, June 25, 1910—Southern red oak, p. 23-4; Utilization of hardwoods; pyrography, p. 50-1.

Lumber review, June 15, 1910—Timber wealth of the Philippines, p. 44-6.

Mississippi Valley lumberman, June 24, 1910—Conservation of natural resources, by W. M. Bray, p. 35-6.

Pacific lumber trade journal, June, 1910—Taxation of timber lands, by D. E. Fairchild, p. 36-42.

Pioneer western lumberman, June 15, 1910—A brief consideration of California's lumber industries, p. 13-15; Eucalyptus commercially considered, by G. B. Lull, p. 23-5.

St. Louis Lumberman, June 15, 1910—Blue stain in lumber and its prevention, by W. B. Harper, p. 63-4; Increasing interest in the soda-dipping process, p. 64-5; Mechanical means for the automatic dipping of lumber, p. 66-7; Soda dipping at the plant of the Gilchrist-Fordney lumber co., p. 67-8; Agricultural possibilities of the pine lands of the south, by B. Colbert, p. 72-4.

St. Louis lumberman, July 1, 1910—Prevention of blue stain in lumber, by H. von Schrenk, p. 60-1; Comparison of results from experiments on cut-over pine lands with other agricultural lands of the United States, by B. Colbert, p. 65-7; The yellow pine creosoted block, p. 68-70.

Timber trade journal, June 11, 1910—The timber trade in Grand Canary, by W. H. R., p. 877-8; Tree felling by machinery, p. 881.

Timberman, June, 1910—Method of drying wood with superheated steam at low temperature, by D. E. Lain, p. 52.

United States weekly consular report, June 15, 1910—The rubber industry; Mexico, Honduras, East Indies, by W. W. Canada and others, p. 769-73; Wooden water

pipes; Australian factory started for supplying a heavy demand, by H. D. Baker, p. 792.

Wood craft, July, 1910—A museum of trees, the Arnold arboretum, p. 103-5; Moldings, their construction and practice, by J. Hooper, p. 106-9; Storing lumber and handling shavings, by J. F. Hobart, p. 110-11; A heart-to-heart talk with the wood finisher, by A. A. Kelly, p. 112-13.

Wood-worker, June, 1910—The history of balata belting, p. 52-4.

Forest journals

Allgemeine forst-und jagd-zeitung, June, 1910—Die forstlich wichtigen bestimmungen des vorentwurfs zu einem deutschen strafgesetzbuch, by Eberts, p. 188-99; Abermals "Neue methode zur raschen und genauer ermittelung des holzgehaltes ganzer bestände," by Schubert and Wimmenauer, p. 199-205; Ueber die wahl der durchschlagszeit von waldungen zur bestimmung des hiebssatzes, by F. Gascard, p. 205-6; Die grösse der natürlich verjüngten waldflächen, p. 217-18.

American forestry, July, 1910—The new forest products laboratory, by E. A. Start, p. 387-403; The work of the government in forest products, by H. S. Graves, p. 405-8; Some examples of timber tests, p. 409-14; The paper and pulp industry and conservation, by B. R. Goggins, p. 415-18; Tennessee river improvement and sedimentation, by L. C. Glenn, p. 419-22; What is conservation? p. 423-5.

Bulletin de la Société centrale forestière de Belgique, June, 1910—A propos de la provenance des graines de pin sylvestre, by E. de M., p. 389-94; Le pin cembro, p. 395-7.

Centralblatt für das gesamte forstwesen, April, 1910—Neue gesichtspunkte über die entstehung von nonnenkalamitäten und die mittel zu ihrer abwehr, by F. A. Wachtl, p. 145-51; Bodenphysikalische untersuchungen in mischbeständen von eiche und buche, by R. Wallenböck, p. 151-6; Zur theorie der abrundungskluppen, by N. von Lorenz, p. 157-62; Konstrucktion und berechnung der strebwerksklausen auf gleiche biegungsfestigkeit, by L. Hauska, p. 163-76.

Forestry quarterly, June, 1910—The cost of forest mapping and estimating in Montana, by K. W. Woodward, p. 147-57; The effect of grazing on forest conditions in the Caribou national forest, by E. R. Hodson, p. 158-68; Comparison of large and small sawmills on Tahoe national forest, by M. B. Pratt, p. 169-73; Yield tables of western forests, by E. I. Terry, p. 174-7; Notes on the wood structure of the Betulaceæ and Fagaceæ, by I. W. Bailey, p. 178-85; Forestry in the agricultural colleges and experiment stations, by S. B. Green, p. 186-90; Notes of a civil engineer on a forester's education, by F. B. Knapp, p. 196-7; The place of forestry in general education, by H. A. Smith, p. 191-5; Growth of the Forest service library, by H. E. Stockbridge, p. 198-200; Some European forest notes, by C. E. Bessey, p. 201-9; A supervisors' meeting, p. 210-21.

Indian forester, April, 1910—Indian state forestry, by S. Eardley-Wilmot, p. 179-91; Notes on the forests of Heppenheim in Hesse-Darmstadt, by F. Cowley-Brown, p. 191-202; The bamboo forests of the Ganges Division, U. P., by B. A. Rebsch, p. 202-21; Effect of rainfall on forests, by E. Batchelor and R. S. Pearson, p. 222-5.

Revue des eaux et forêts, May 15, 1910—Insectes nuisibles aux arbres forestiers de l'Inde, by E. H., p. 303-7; Alcohol ordinaire tiré du bois, p. 314-15.

Revue des eaux et forêts, June 1, 1910—Divisions botaniques et régions forestières de l'Algérie, by G. Lapie, p. 324-8; L'impot forestier en Allemagne, by A. Arnould, p. 328-39; Le probléme sylvopastoral dans l'Italie du sud, by J. Dinner, p. 339; Forêts inexplorées en Chine, p. 347-9; La distillation sèche du bois avec la vapeur surchauffée, p. 349-50; La situation forestière dans l'Afrique du Sud, p. 350-2; Tarif général de cubage pour l'estimation en bois et résine des coupes de pins maritimes dans la région du Sud-Ouest, by P. Biquet, p. 353-67; Tarière de Pressler, by A. Schaeffer, p. 367-70

Zeitschrift für forst- und jagdwesen, May, 1910—Veränderungen des bodens durch aufforstung bisheriger ackerländereien, by Fricke, p. 259-64; Der Kameruner küstenwald, by M. Büsgen, p. 264-83.

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Oregon Pamphlet

In a pamphlet just sent out by the Oregon Conservation Association, it is stated that the association is working for the following items: Protection of timber from fire, protection of immature timber from destruction and waste, reforestation of burned and cut-over areas, protection of forests from destruction by insects, fish and game protection, topographic surveys and inventories of state resources, development of inland waterways and good roads throughout the state.

It is also stated that the association is not working for politics, prevention of legitimate development, legislation for the benefit of any class, or legislation against any particular class.

NEWS AND NOTES

Congress of Experiment Station Workers

For the first time, the United States is to be represented among the forest experiment station workers of the old world. The United States Department of Agriculture is a member of the International Association of Forest Experiment Stations, and the Forester has designated Prof. Filibert Roth, of the University of Michigan, as the representative of the Forest Service at the convention of the association, which will be held in Brussels in September in connection with the Brussels centennial exposition.

This first participation of the United States in a meeting of the international association is most significant. It means that this country has begun to work out original experimental results in forestry which are considered worthy of being presented before European foresters; and it means, too, that American foresters are to gain all the advantages which must come of active cooperation with forest experiment station workers throughout the world.

Forestry in Missouri State University

The curators of the University of Missouri have voted to establish a school of forestry at the university.

Reforesting to Protect Water Supply at Guelph

The city of Guelph, which stands foremost in the Dominion of Canada as regards municipal ownership of public utilities, is now started upon a new enterprise. About four and one-half miles from the city, and well above it, lie 168 acres of land surrounding the springs which provide the city with water; over one-fourth of this is already well supplied with trees, but the need for further forest protection of the springs was seen by the people to be imperative, as the demand upon the water supply was increasing with the city's growth. Accordingly, the city has set out 40,000 young trees in the locality. White pine, Norway spruce, larch, and Scotch pine have been used, about thirty acres having been planted up to date.

The cost has been $13.23 per acre, which cost is for the trees, planting, and care only, the value of the land not having to be considered, as it had no rental value, for, owing to its position relative to the water supply, it had to remain idle. The trees are reported to be doing well after the first few months' test.—*Christian Science Monitor* (Boston).

Good Results at Corbin Park

J. G. Peters, of Washington, chief of the office of state and private cooperation in the United States Forest Service, and State Forester Edgar C. Hirst, of New Hampshire, have recently inspected the forests in Corbin Park, N. H.

Mr. Peters' visit to New Hampshire is for the purpose of inspecting the forests which have been worked under plans furnished by the government, and in the case of Corbin Park, Mr. Peters found that the recommendations in the matter of cutting and reforesting had worked out admirably.

There are from 18,000 to 20,000 acres of forest lands in the park enclosure, and while 3,000,000 feet of lumber were taken out last year, it was done so scientifically that little evidence of it is presented.

The work of reforestation has gone along with the cutting. In places the cut-over spaces have been replanted with new trees, while in others the trees have done their own seeding and the young growth is coming along well.

Pennsylvania Railroad Nursery

There is a sharp lesson, and encouragement, in the record for rapid forestry reached at the nursery of the Pennsylvania Railroad at Trenton, where 27,000 saplings one year old have been taken out of a space four by twenty-four feet. If the Pennsylvania Railroad can do this, others can—and should, for profit.—*Boston* (Mass.) *Advertiser.*

Large New Canadian Reserve

The entire slope of the Rocky Mountains, from the international boundary line northward to within a short distance of the Fifty-fourth parallel of north latitude, is now reserved from settlement or occupation and will be administered entirely with a view to the proper utilization and reproduction of the forest, the protection of the water supply of the prairie provinces and other related objects. Such is the effect of an order-in-council just passed.

The total area of the district now reserved from settlement along the eastern slope of the Rockies in Canada is about 14,400 square miles. On the additional 48,000 square miles just reserved, the effect of the reservation will be to withdraw the timber from disposal under license. It is not intended, however, to withdraw the resources of the area from use, and the use of timber, minerals, stone, and other building materials, under certain specified restrictions, will not only be allowed, but encouraged. For hunting and trapping, it will be necessary to have a permit. The reserve will be under the administration of the forestry branch of the department of the interior.—*Chicago Record-Herald.*

Must Look to Her Senators and Representatives

The agreement which was reached in the Senate before Congress adjourned that a vote upon the Weeks Forestry Bill should be taken on February 15 next is cause for some consolation in the face of a failure to enact that measure at the present session. If reports from Washington are to be trusted, there is little reason to doubt the passage of the bill at that time; although there is some danger of the insertion of amendments, and the consequent possibility of its being held up in conference between the houses. New England will have to look to her senators and representatives to avert any such disappointment. But, at the best, the fact remains that the taking effect of this imperatively needed legislation has been postponed practically another year, and that the destruction of the forests, which might otherwise have been protected, will continue through another winter's lumbering season. It is impossible to definitely assert what "might have been," yet it is not improper to suggest that had the forestry bill been brought up earlier in the session by Senator Brandegee of Connecticut, as he was earnestly urged to do by the advocates of the measure, there would have been far less incentive to employ obstructive or filibustering tactics against it such as were only too effectively followed by Senator Burton of Ohio. The appearance of any bill in the closing days of a congressional session always offers a temptation to the cantankerous to obstruct its passage, because of the knowledge that only a comparatively brief objection will cause it to fail. It is open to serious doubt whether Senator Burton would have felt impelled to make his stand had the bill been brought forward at an earlier date.—*Springfield Republican.*

Annual Meeting of New Hampshire Society

The annual meeting of the Society for the Protection of New Hampshire Forests will be held on August 2 and 3 at Bretton Woods. There will be an important conference on the forest reserve bill to which a number of distinguished public men have been invited. Among those who have accepted are Congressmen Currier of New Hampshire and Lawrence of Massachusetts.

The New Hampshire forestry commission is to hold, on the afternoon of the first day, a convention of the town forest fire wardens of the state. Among the topics for discussion there will be "Forest Taxation," "State and Town Forests," "Gypsy and Browntail Moths," and the "Plan for Local Forestry Associations in the Towns." Forest planting and the condition of the mountain forests will be pictured by the stereopticon. All of the sessions will be open to the public.

The sessions will be presided over by the Hon. Frank W. Rollins, the president of the society, and by the Hon. Robert P. Bass, chairman of the state forestry commission.

Eucalyptus in California

George M. Homans, state forester of California, after inspecting 3,000 acres of eucalyptus plantation in Escondido, Bernardo, and Encinitas, expressed himself as highly pleased with the results which have been attained in the growing of eucalyptus in this section.

Mr. Homans, who recently succeeded G. B. Lull in the office of state forester, has been on a tour of inspection over the state, with especial reference to the eucalyptus industry. It is the idea of his department, he says, to secure all the official data possible concerning the industry and to lend its fostering influence to it.

Mr. Homans states that California is taking the lead in the raising of eucalyptus. The acreage of eucalyptus in California is now said to be greater than the acreage of all the remaining states of the Union. In the years 1909-1910 more than 23,000 acres were set out to eucalyptus trees in California. It is the opinion of Mr. Homans that the industry will become an important one in the state.

Mr. Homans visited the 600 acres of eucalyptus at Bernardo, planted by the Eucalyptus Culture Company of San Francisco; the 700 acres planted by the Pratt Eucalyptus Company of Los Angeles, under the direction of S. J. Flintham, and the 1,700 acres planted by the Santa Fe Railway Company near Encinitas.—*Los Angeles* (Cal.) *Examiner.*

STATE FOREST OFFICERS

Important changes have taken place during the past year in both the organization and the personnel of the state forest departments, and similar changes are taking place constantly. In order to record the progress made, as well as to invite corrections and make the list complete and accurate, a table of state forest officers, with their titles and addresses, is printed below:

STATE FOREST OFFICERS

State or territory	Name and post-office	Official position
Alabama	John H. Wallace, Jr., Montgomery	Commissioner, department of game and fish.
California	G. M. Homans, Sacramento	State forester.
Connecticut	S. N. Spring, New Haven	State forester.
Hawaii	Ralph S. Hosmer, Honolulu	Superintendent of forestry.
Indiana	Charles C. Deam, Indianapolis	Secretary, state board of forestry.
Iowa	C. A. Scott, Ames	Forester, agricultural experiment station.
Kansas	Henry Cooper, Dodge City	Commissioner of forestry.
	F. H. Ridgway, Ogallah	Commissioner of forestry.
Kentucky	M. C. Rankin, Frankfort	Commissioner, department of agriculture, labor and statistics.
Louisiana	F. J. Grace, Baton Rouge	State forest commissioner.
Maine	Edgar E. Ring, Augusta	Land agent and forest commissioner.
Maryland	F. W. Besley, Baltimore	State forester.
Massachusetts	F. Wm. Rane, Boston	State forester.
Michigan	Marcus Schaef, Roscommon	State forester.
	Filibert Roth, Ann Arbor	State forest warden.
Minnesota	Gen. C. C. Andrews, St. Paul	Forestry commissioner.
Montana	Charles W. Jungberg, Helena	State forester.
New Hampshire	E .C. Hirst, Concord	State forester.
New Jersey	Alfred Gaskill, Trenton	Secretary, forest park reservation commission, and forester.
New York	James S. Whipple, Albany	Commissioner, forest, fish and game commission.
	C. R. Pettis, Albany	Superintendent of state forests.
North Carolina	J. S. Holmes, Chapel Hill	Forester.
Ohio	Edmund Secrest, Wooster	Forester, state agricultural experiment station.
Oregon	J. W. Baker, Cottage Grove	Forestry, fish and game warden.
	A. B. Wastell, Portland	Secretary, state board of forestry.
Pennsylvania	Robert S. Conklin, Harrisburg	Commissioner of forestry.
Rhode Island	Jesse B. Mowry, Chepachet	Commissioner of forestry.
Tennessee	H. A. Morgan, Knoxville	Director, college of agriculture and experiment station.
Vermont	Austin F. Hawes, Burlington	State forester.
Virginia	G. W. Koiner, Richmond	Commissioner, department of agriculture and immigration.
Washington	R. W. Condon, Port Gamble	Chairman, state board of forest commissioners.
	J. R. Welty, Olympia	State firewarden and forester.
West Virginia	A. B. Brooks, Morgantown	State forester.
Wisconsin	Edward M. Griffith, Madison	State forester.

STATE FORESTRY ORGANIZATIONS

A list of state forestry associations and their secretaries is printed below. Corrections in this list will be carefully recorded by AMERICAN FORESTRY.

Name of organization	Secretary	Address
Appalachian Mountain Club	R. B. Lawrence	Tremont Bldg., Boston.
Arizona—Salt River Valley Water Users' Association.	Charles A. van der Veer	Phoenix.
California—Water and Forest Association	I. C. Friedlander	1405 The Merchants Exchange Bldg., San Francisco.
Forestry Educational Association	E. C. Damon	San Diego.
Sierra Club	William E. Colby	San Francisco.
Pacific Coast Forest, Fish and Game Association.	Wm. Greer Harrison	San Francisco.
Tri-counties Reforestation Committee	Miss L. A. Finch	Riverside.
Colorado Forestry Association	Ellsworth Bethel	Denver.
Connecticut Forestry Association	F. H. Stadtmüller	Elmwood.
Georgia Forestry Association	Alfred Akerman	Athens.
Iowa Park and Forestry Association	Welsey Greene	Des Moines.
Maine Forestry Association	Edgar E. Ring	Augusta.
Massachusetts Forestry Association	Irving T. Guild	4 Joy St., Boston.
Michigan Forest Association	H. G. Stevens	25 Band Chambers, Detroit.
Minnesota State Forest Association	E. G. Cheyney	St. Anthony Park.
Nebraska Park and Forestry Association	Miss Leila B. Craig	York.
New England Forest, Fish and Game Association.	Arthur T. Harris	16 State St., Boston.
New Hampshire—Society for the Protection of New Hampshire Forests.	Allen Hollis	Concord, N. H.
New York—American Forest Preservation Society.	Geo. Milroy Bailey	Corfu, N. Y.
Forestry, Water Storage and Manufacturing Association of the State of New York.	Chester W. Lyman	1 Broadway, New York
Northern New York Forestry Association	O. B. Trappan, Director	Potsdam, N. Y.
State of New York Fish, Game and Forest League.	L. C. Andrews	Elmira.
The Association for the Protection of the Adirondacks.	Edward Hagaman Hall	Tribune Bldg., New York City.
North Dakota State Sylvaton Society	Miss Ella J. Mitchell	Penn.
Ohio—Cincinnati Forest and Improvement Association.	Adolph Leue	127 West Twelfth St., Cincinnati.
Ohio State Forestry Society	Prof. J. J. Crumley	Wooster.
Oregon Conservation Association	A. B. Wastell	904 Lewis Bldg., Portland.
Pennsylvania—Franklin Forestry Society	W. G. Bowers	Chambersburg.
Pennsylvania Forest Association	F. L. Bitler	1012 Walnut St., Philadelphia.
Vermont Forestry Association	Ernest Hitchcock	Pittsford.
Washington Conservation Association	Clarence H. Bailey	P. O. Box 236, Seattle.
West Virginia Forestry Association	A. W. Nolan	Morgantown.

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